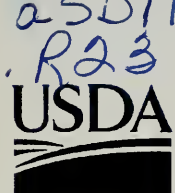


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Do not assume content reflects current scientific knowledge, policies, or practices.



United States
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Agriculture

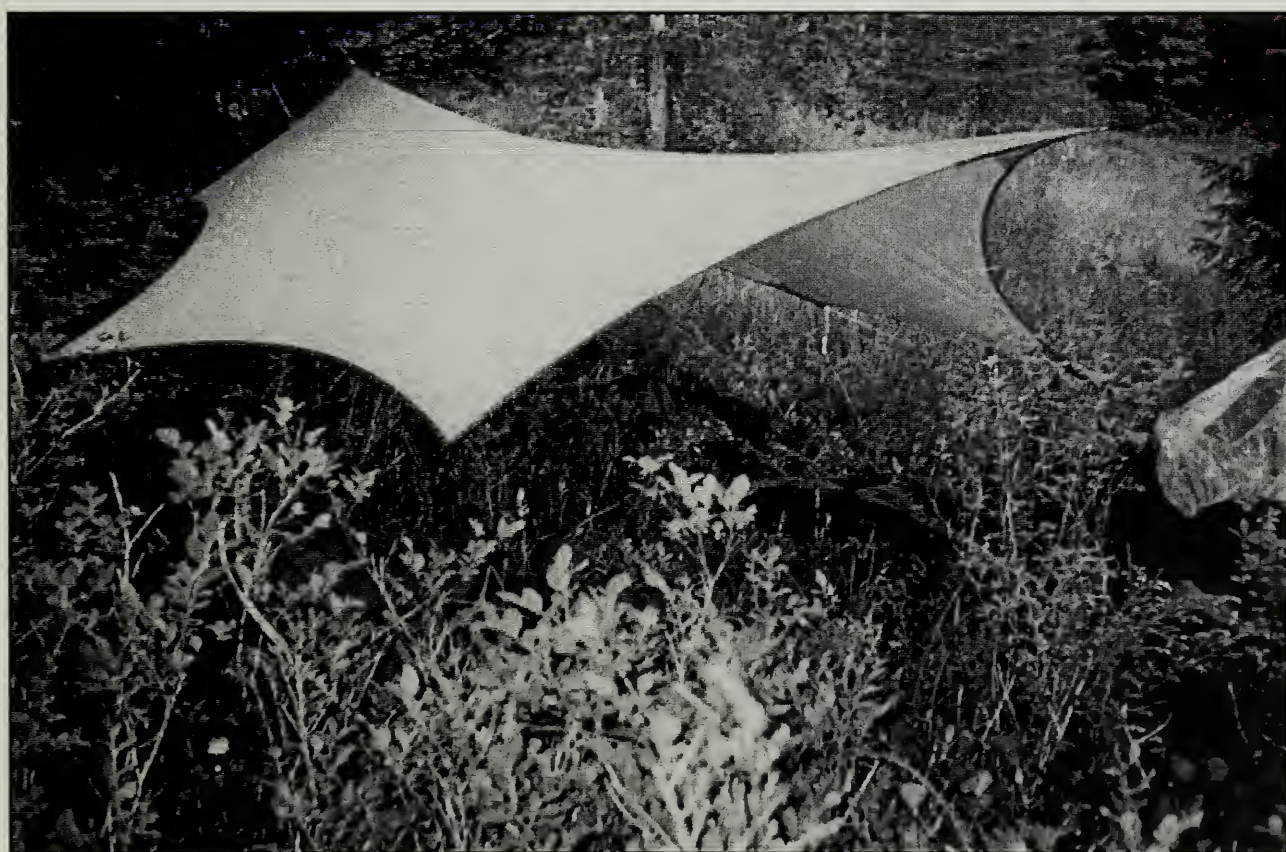
Forest Service

Alaska Region
Tongass National
Forest
R10-MB-402a
December 1999



Misty Fjords National Monument Wilderness Ecosystem Inventory Monitoring Baseline Data 1999 Yearend Report

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Tongass National Forest, Ketchikan Specialist Report

DEDICATED TO

The National Wilderness Preservation System
To our Historians for which the system is responsible

And the many highly motivated individuals who work tirelessly for the protection and preservation of this important resource, from the ground pounders and district managers to the walls of Capital Hill.

We hope this program can help the cause.

TONGASS NATIONAL FOREST
MISTY FIORDS NATIONAL MONUMENT WILDERNESS
Ecosystem Approach to Inventory and Monitor Conditions

Table of Contents

Chapter 1 -	Foward
Chapter 2.	Introduction: Goals and Objectives
Chapter 3.	Accomplishment Summary by VCU
Appendix A -	Response to TLMP Monitoring Questions
Appendix B -	TLMP Standards and Guidelines
Appendix C -	Photo Documentation
Appendix D -	Specialist Report Examples
Appendix E -	Data Base Examples
Appendix F -	Field Form Examples
Appendix G -	Data Dictionary
Appendix H -	Inventory/Monitoring Protocols
Appendix I -	Crew Itinerary
Appendix J -	Equipment List
Appendix K -	Resource Specialist List
Appendix L -	Recipient List
Appendix M -	Project Work Plan

FORWARD

It is easy to question science and inventory/monitoring programs. There are unlimited why's and what for's, there is always the possibility for studying things in more depth. But the point is to stop worrying about all the little things and try to do something, to establish a program that can be learned from and built upon, utilizing the best available information and resource specialists at your disposal. **It is important to understand what an inventory/monitoring program is and is not. It is an observational record utilizing specific indicators for the various resources we are documenting information. It is a broad scaled observational record, not a specific indicator research project. An inventory/monitoring program helps to define research project needs. It is not a research project in itself. It is simply an observational record.**

The program here at Misty Fiords National Monument Wilderness (MFNMW) has been in the development stage for the past three years and is getting closer and closer to being a program we are satisfied with. Every passing year brings a tweak here or a tweak there as new information is made available to further monitoring goals and techniques. It is always important to be open to improvements. Any information about this important resource is bound to be helpful to all of us in the future.

Inventory and monitoring is often talked about as being one of the important elements for any resource management, and wilderness is no exception. In wilderness, however, the inventory and monitoring of conditions is often feared by managers due to the daunting scope of the task. The immensity leads to the avoidance, and the typical priorities revert to status quo: maintenance of facilities, education, research, and finally, monitoring. Research is of no use to us if we never apply it. I would recommend a change in the priority list to look something like this: research, monitoring, education, and finally maintenance. Especially here in Alaska where expedition quality wilderness still exists with minimal physical impacts to the ground in relation to the size of the country. It is important to understand what an inventory/monitoring program is and is not. It is an observational record utilizing specific indicators for the various resources we are documenting informations. It is a broad scaled observational record, not a specific indicator research project. An inventory/monitoring program helps to define research project needs. It is not a research project in itself.

Perhaps more important than that is the opportunity for the development of primitive recreation opportunities such as: cabins, extensive trail systems, flightseeing, and camp grounds through adjacent land management. These are all primitive recreation opportunities that need to exist in ample quantity to support demand. Alaska is fortunate enough to have that kind of primitive recreation opportunity available to managers on adjacent non-wilderness lands. The consolidation of the the Ketchikan District and MFNMW has enabled us to look at the possibility of providing more of the developed primitive recreation opportunities on non-wilderness lands within our jurisdiction, while preserving the wilderness lands for the most primitive expedition type recreation experiences, where the removal of confusing compromises such as cabins, administrative facilities, and the like is more desirable than the construction of new facilities. Most lower 48 wildernesses do not have that opportunity available to them in the same quantity as does Alaska. Due to the nature of the urban development surrounding most of those southern wilderness areas, they are often forced into compromising their wilderness areas to provide for a larger portion of their primitive recreation opportunities, i.e. extensive trail systems,

stock, pressure from other interest groups like: mountain bikes, snowmobiles, and all terrain vehicles. A new interest on the market is a motorized all terrain skateboard... Anything is possible...

Due to the inaccessibility of Alaskan wilderness and the difficulty in building extensive trail systems, the need for trail-driven access has not been necessary. The complexity of Alaskan wilderness management has taken on a whole dynamic of its own. It is not a vast system of trails and growing numbers of campsites that threatens these areas, but rather the constant hum of aircraft with the roar of landings and take-offs, the mechanization of technology that disrupts the wild qualities of wilderness in Alaska. Access is the universal issue.

But it does not have to be that way. Alaska has the vastness to provide for all recreation opportunities on the spectrum, including wilderness recreation - that high quality expedition caliber experience, the best of the best, while still providing for the other forms of primitive recreation such as trails, cabins, flightseeing, cruise ships, and campgrounds within our adjacent land management zones. In such a fashion we avoid the compromises so often made to our Designated Wilderness, meeting the demand for the various primitive recreation opportunities available on the forest, while preserving wilderness at an extremely high level. Removing the compromises made to wilderness as opposed to compounding them. Improving the condition of wilderness at every opportunity is the objective. Improvement rather than degradation is the goal, while at the same time meeting the needs of other primitive recreation opportunities in adjacent land management zones.

Understanding and documenting the existing conditions of these areas and the possibilities that exist within their boundaries to the best of our ability is a critical first step toward quality stewardship of all resources. MFNMW has made the attempt to establish an inventory/monitoring program. For the purpose of improving public education, management planning and decisions made about this important resource.

Introduction

GOALS AND OBJECTIVES

The goals and objectives are outlined in this section.

Introduction

The Kechikan/Misty Ranger District entered into a third year of wilderness monitoring that would systematically assess the status of wilderness conditions from saltwater to alpine in eleven Value Comparison Units (VCU). The need to monitor these conditions has become necessary with increasing wilderness use and interests which threaten the integrity of this designated wilderness area. The objective of this project was to establish habitat baseline data for use as comparison information in non-wilderness application, and to establish an existing conditions data base for the purpose of wilderness application.

Now is the perfect time to collect baseline data for monitoring changes to the resource and developing future management prescriptions. The physical impacts to the ground are at present very minimal. Having baseline data documenting those conditions now, *before* impacts become apparent, is critical for establishing and maintaining standards and guidelines for detecting degradation over time, thus assuring management response in a timely manner. As use increases and issues become more prevalent there will soon be a need to establish Limits of Acceptable Change (LAC). An existing conditions data base would facilitate detecting change to these conditions for future planning processes. This is necessary to maintain a reasonable level of confidence in making future management decisions that protect and preserve the integrity of this wilderness area.

This monitoring project is in its third year of development and the standards and protocols for Wilderness Inventory and Monitoring are available for application within the Alaskan Region. Various surveys had been completed within MAFNM prior to this project, but they had not been organized under an integrated ecosystem approach. Consistent collection methods and organization of baseline status data are needed for future comparison of impacts and changes to wilderness, wildlife, vegetation, stream, recreation and cultural resources incurred by public use. A systematic ecosystems management approach by VCU was used to plan targets, organize work and data, quantify accomplishments, and make condition assessments based on the expertise of the various disciplines. The crew consists of a mix of recreation and wildlife technicians, sharing skills and abilities to maximize information collected.

This project intends to benefit multiple resources by providing varying habitat baseline data, and existing condition assessments. Primary indicators were established by the various disciplines in conjunction with Forest Plan direction and are applicable in any Tongass Wilderness. The VCU's we surveyed during this assessment were chosen based on the high level of use they already receive or have the potential to receive. The six primary elements of inventory and monitoring conditions are: wildlife, vegetation, recreation, stream, forest health, and cultural surveys. Other observational elements include: visuals, landslides, and unique geologic features are recorded as encountered.

Wildlife monitoring included Northern Goshawk, Marbled Murrelet, Bald Eagle, Amphibian and Small Mammal surveys. General wildlife observation notes were also compiled for each VCU focusing on marine mammals and larger predators like Wolves, and Brown Bears. Vegetative surveys were accomplished in association with existing and potential campsites and at potential helicopter landing sites to quantify existing vegetative loss and percent disturbance, if any. Plant association was collected at all existing and potential recreation sites. Recreation surveys monitored social encounters while documenting existing and highest potential use sites. Data such as number of planes, boats, and trail

encounters were recorded daily, conditions of structures and facilities, existence of campsites and social trails, vegetative losses/percent disturbance, and general accessibility were collected as encountered. Tier 1 survey reports were documented to provide fish biologist general baseline verification and comparison data in determining if a basin wide survey might be of value. Forest health surveys assist silviculturalist as baseline data to determine and monitor stand structure and as habitat type information in determining overall conditions and health of MFNMW. Cultural surveys documented evidence of historical native use and existence. Data such as culturally modified trees, fish weirs, pictographs, and historic structure remains were recorded as encountered. Special geologic information (landslides, caves, geothermal activity, etc...) was collected as encountered.

All data collected is input into the Geographical Information System (GIS) layers and different working data base programs. A detailed folder of information is established for each VCU. A year end report and executive summary were produced highlighting the various elements of monitoring that has been accomplished. Back Country Recreational Opportunity Guides (ROG) are produced whenever appropriate. An informational display is produced to illustrate the work that is being accomplished, why it is accomplished, and how it is being accomplished.

The methods chosen for collecting this data was considered consistent with wilderness values and management objectives. Kayak, canoe, and foot travel were the primary methods used to explore these VCUs. In addition to being consistent with wilderness management objectives, these methods proved to be very efficient and effective, enabling us to examine the resource in much greater detail than the general perspective often gained by the various means of motorized transportation. Both perspectives are important and necessary for determining overall and deteriorating conditions within the monument wilderness. More detailed information is provided when methods of examining conditions are methodical and systematic. Leading the agency and public by example and becoming the benchmark to which all other recreation use is measured against is an additional benefit to this project work and the Regions overall wilderness management efforts and commitment.

As this project is still a relatively new attempt to set wilderness monitoring standards and protocols for Alaskan application, anticipated ease of data collection is still being explored. Goals were set as high as possible in order to determine what could be achieved by two people traveling over difficult terrain with variable weather conditions. An attempt to adequately assess the existing conditions in an entire VCU by two people paddling and hiking with all food, survey and camping gear needed for 10 - 20 days is obviously ambitious. And yet, it was determined that it is not only possible, but necessary in order to gain adequate detail for making an overall assessment of conditions in each VCU.

The rationale for survey intensity for individual VCU's is as follows. Intensity of survey is based on several factors that include: VCU size, recreational potential, cultural remnants or potential, fish and wildlife habitat, and forest health. The objective of this system is to get a feel for the amount or recreational use occurring, opportunity, and its future potential, wildlife activity, fish and stream status, cultural remnants, vegetative classes, etc... Basically we are seeking an inventory of conditions as seen from the ground. As determined by these factors, each VCU is given a time allotment in order to explore as much of the VCU as possible. Transects are established along traditional travel routes ranking in priority from highest to lowest, saltwater being highest as it is the most accessible, then drainages leading to lakes large enough to support air traffic, then alpine systems with reasonable access from salt water or lake systems, and finally major drainages that could support recreation activity or boat traffic from kayaks/canoes to jet boats. The average length of tour is based around a ten day schedule, though that can vary based on the VCUs size and potential for recreation activity.

Our intention was to combine a wildlife and wilderness technician in each crew to accomplish the varying data collection tasks. Benefits such as valuable cross training, cost sharing, and logistical coordination are a result of combining personnel in this fashion and were large factors in the success of this project.

Various wildlife, vegetation, stream, recreation, and cultural resource surveys were completed in each of the eleven VCU's. These areas were: VCU 7980 up Rudyerd River and encompassing Walker Lake; completion of saltwater in; VCU 7990 in Walker Cove and up Walker Creek; VCU 7930 covering saltwater north to Robinson Creek and 10 miles up the Chickamin River; Leduc Lake, Leduc River, the Chickamin wetlands and the Chickamin River in VCU 7940; VCU 7790 on the northeast side of Revillagigedo Island; Portage Cove in VCU 7780; VCU 7770 which covers salt water in the vicinity of snip island; VCU 7760 encompassing Grace Creek Trail and Grace Lake; and finally, VCU's 7740 and 7750, including Sargent and Manzanita Bays for training purposes.

General wildlife observations worth noting from summer's work

Numerous brown bear were seen in Walker Cove and the Chickamin River drainage. Wolf were seen and heard on every tour and wolf packs were found in the Chickamin, Portage and Grace drainages. For more detailed information see specialist report and/or individual VCU report folders. A Red-tailed Hawk nest was located up Rudyerd River, a Western Grebe was observed in Chickamin Cove. **A new species of small mammals was identified (*Phenacomys intermedius*) Heather Vole, this type of information is exactly what we are looking to confirm and document for the purpose of inventorying the existing conditions of MFNMW.**

Conclusion

It is generally regarded that physical impacts to the backcountry of Misty Fiords National Monument Wilderness are minimal in comparison to the size of the country being surveyed; however, physical impacts have been found and documented. Present physical impacts from existing use is minimal and within sustainable levels at most locations. Social impacts, are extreme in some locations due to the unrestricted use of commercial flight-seeing and tour ship traffic. To maintain the pristine characteristics of the physical environment, addressing the social disturbances is necessary utilizing a strong educational program in conjunction with a watchful eye over these conditions to detect change as early as possible. In recent years there has been an increased interest in sea kayaking, river rafting, hunting, fishing, and cross-country travel. With this increased use physical impacts will most certainly follow in its wake. Physical use and impacts are on the rise, every year brings new outfitter guide interest, additional kayakers, as well as expedition quality thrill seekers. For example: A German native attempted to traverse the whole of the MFNMW south to north. And though the southern portion of his attempt from Hidden Inlet to Wilson Lake was weathered out, he did manage to complete the second portion of his journey from Wilson lake to Hyder, an impressive feat! An American couple traversed through the Portage Cove drainage and on out to Swan Lake and Carroll Inlet. These types of experiences are becoming more and more popular as well and are the kinds of experiences wilderness was intended to serve.

It is in the area of social impacts where managers of Misty Fiords National Monument Wilderness have a greater challenge. There are times when we feel like we are in the flight path of an urban airport. This has a negative impact on people using the grounds for the purpose of enjoying solitude, peace, quiet, challenge, and risk. The large cruise ships likewise create a visual impact. The opportunity for plane crashes and boating mishaps are always possible and difficult to deal with due to the remoteness and

varying weather conditions of this area. Typical wildlife use patterns are sometimes altered due to the mechanized intrusion. Injury and death to individual animals has occurred in alpine areas from harassment by planes for wildlife viewing. Additionally, wakes caused by ships can cause injury or death to sea mammals at haul-out locations. The increased access for sport hunting and fishing will in turn result in significant physical impacts over time.

It is critical for us to know and understand to the best of our abilities the existing conditions of our Wilderness area for the purpose of managing this area in compliance with a non-degradation policy and to provide the best available wilderness opportunities within the National Wilderness Preservation System. Alaska is the last frontier. Our desired future condition for Misty Fiords National Monument Wilderness (TLMP 3-24) is one where ecological processes and natural conditions are not measurably affected by past or current human uses or activities.

To be quality stewards of these wilderness acres, like all resources, requires an inventory of their goods and product; in wilderness that product is wildness! Documenting the existing conditions of wildness and establishing a baseline inventory and monitoring system to check those conditions is the bare essential for managing wild country into the next century. Without it we have no starting point for management and typically end up compromising on the level of solitude and remoteness.

Please see attached map. All data collected during these surveys, and the precise locations of all surveys can be found in separate VCU file folders, a GIS database, working databases, data tables, photographs, and VCU maps.

Total Annual Accomplishments 1999:

Total # of VCU's Visited:	* 11 VCU's
Total VCU Acreage Cleared:	* 269,294 cleared of 359,059 total VCU acres
Total Distance Covered:	* 161 miles
Proposed Helicopter Landing Sites:	* 7 visited
Total Amphibian Trap Nights:	* 56 trap nights
Total Small Mammal Trap Nights:	* 484 trap nights
Total Goshawk Surveys:	* 25 survey sites (0 sighted)
Total Marbled Murrelet Dawn Counts:	* 6 dawn counts (4 counted)
Total Bald Eagle Nests:	* 5 nests documented
Total Existing Recreation Sites:	* 7 sites documented
Total Potential Recreation Sites Surveyed:	* 56 sites documented
Total Planes Encountered:	* 185 plus 2 helicopters documented
Total Cruise Ships:	* 1 documented
Total Pleasure Craft:	* 9 documented
Recreation Opportunity Guides (ROG):	* 6 (potential cross country routes)
Total Trash Removed:	* 10 lbs. of trash were found and removed
Total Cultural Sites:	* 1 documented
Total Forest Health surveys:	* 45 documented
Total Vegetative Site Disturbance Plots:	* 72 documented
Total Landslide Observed:	* 3 documented
Total Stream Surveys:	* 6 streams documented
Total Permit Inspections:	* 0 sites visited
Total Radio Transmission Points:	* 14 documented (2 successful)
Total Person Days Spent in Field:	* 140 days + 5 supervisor days
Total Person Days in Office:	* 90 days + 90 supervisor days (project work, planning)
Total Person Days in Training:	* 20 days (district orientation, fire, trails)
Total Person Days Used:	* 250 days, GS-5 and 90 days, GS-9 \$19,000.00 + \$27,500.00 = \$46,500.00 total costs
Total Food and Misc. Equipment Costs:	* \$ 20,000.00
Program Costs 1998:	* <u>\$66,500.00</u>

General wildlife observations worth noting from summers work. A large brown bear was seen on Revilla Island in the vicinity of the Point Alava cabin. Normally brown bears are found only on the mainland in Southern Southeast Alaska. A suspected Lynx track was found along Fish Creek. Brown bear in traditional estuaries of Rudyerd Bay seem to have changed their feeding habits , possibly due to excessive plane traffic. Wolf were seen and heard on several occasions. **A new species of small mammals was identified (Phenacomys intermedius) Heather Vole, this type of information is exactly what we are looking to confirm and document for the purpose of inventorying the existing conditions of MFNMW.**

For more detailed information see specialist report and individual VCU report folders.

This project provided an increased presence in the Monument Wilderness. It collected valuable baseline information for multiple resources and allowed our employees to gain highly developed backcountry skills. Our methods provide an excellent wilderness example within the agency and to the public. Increased data collection skills, increased organization and office skills, and increased computer skills were all gained during the course of this project.

WILDLIFE SURVEYS

Northern Goshawk

The Northern Goshawk is of interest on the Tongass National Forest due to its secretive habits, large home ranges, and uncertain future. The presence of goshawks in wilderness may be comparatively useful for non-wilderness resource management application by providing a baseline of information that might indicate the range of this species and the numbers that might be present in a comparison environment. Northern Goshawks were surveyed by callback and visual observation surveys. The callback surveys use one audio tape, one walkman-type tape player, and one megaphone blaster to locate goshawk migration habits and nests. Surveys were done in varying habitats ranging from open areas that provided good views over long distances to heavily forested areas. Alpine areas were surveyed by visual observations only due to weight and space limitations of equipment. It is believed that the presence of Goshawks is an excellent indicator of an ecosystem where its habitat remains in tact.

Marbled Murrelet

As opposed to last year, we were only asked to monitor murrelet activity in the alpine areas visited. This year we accomplished murrelet dawn counts at every opportunity in varying habitats. Murrelets are of interest in Southeast Alaska since populations have declined sharply near logged old growth areas of the Oregon, Washington, and British Columbia. Murrelets are considered an excellent indicator species for the overall health of heavily forested areas containing uneven aged stands of large trees as it is dependent on this habitat type for nesting.

Bald Eagle

Bald Eagle nest surveys were conducted along the saltwater shorelines and lakeshores of each VCU. Surveys visually determined the presence or absence of Bald Eagle nests. The Bald Eagle, an endangered species in the lower 48 states, is common in MFNMW, and we wish to document its status as an important indicator to the health of this ecosystem.

Neotropical Migrant Birds

Neotropical point count transects were accomplished at established transect locations separately from this project by Mike Brown and Leslie Swada. Neotropical song birds were documented as encountered in the general wildlife observations by crew personnel. Neotropical migrant birds are global indicators of habitat degradation since they winter in the tropics and breed in North America, their presence or absence could serve as an important indicator to the overall health of MFNMW. Pointcounts are recorded in general wildlife observation notes when these birds are present.

Small Mammal Trapping

Surveys were completed to gather presence and absence data on several species of small mammals. This year we accomplished small mammal trapping at every opportunity in varying habitats. As opposed to last year, like Marbled Murrelets, we were only asked to trap for small mammals in the alpine areas visited. Alpine areas were of special interest due to the lack of information about small mammal use of this habitat type in Southeast Alaska. Small snap traps were baited with oatmeal and peanutbutter and set in plots at various alpine locations. Specimens were submerged in alcohol for preservation after identification and sent to the University of Alaska Fairbanks for use and analysis.

A new species of small mammals was identified (*Phenacomys intermedius*) Heather Vole, this type of information is exactly what we are looking to confirm and document for the purpose of inventorying the existing conditions of MFNMW.

Small mammal information is needed on the Tongass National Forest as indicated in the Tongass Land Management Plan (TLMP) Resource Schedule L-10, information needs B-13, Standard and Guidelines 4-119 and 120.

Amphibian Trapping

Minnow traps set with minced clams in likely habitat assessed the presence or absence of six different species known to occur in Southeast Alaska. The spotted frog was the primary species sought as its status in southern Southeast Alaska is poorly known. This frog has been located in Hyder, Alaska area, and in the Unuk and Chickamin River drainages. The other species biogeographical ranges are better understood. Amphibians are generally good indicators for determining the overall health of an ecosystem as they are usually the first species lost when conditions are unstable. Knowing the extent of their presence in this area could help determine the health of this ecosystem in the future.

General Wildlife Observations

General wildlife observations were kept daily by each crew during the course of the field season. These notes included interesting and uncommon observations that could benefit future wilderness management by providing broad baseline data for the various types and quantities of wildlife being observed. Examples might include: various sea mammals, birds, grizzly (brown) bear, wolves, wolverine, fox, beaver, cats, martin, etc...

RECREATION SURVEYS

Existing/Potential Recreation Sites

Assessment of existing and potential recreation sites and opportunities was completed by on-site condition inventory and monitoring. Data on existing trail, cabin, shelter conditions and any other existing recreation conditions such as campsites and social trails for fishing around lakes, trails to alpine, and trash dump sites were collected as encountered. Highest potential recreation sites and opportunity data was collected as encountered. For example, shoreline surveys were completed from kayak or canoe/rowboat on lakes and saltwater to document existing sites and the most likely potential campsites that could receive impact if use were to increase. Criteria is established for defining a high potential campsite. Transects were chosen based on traditional travel routes, and focused on salt and freshwater shorelines, major drainage ports, and ridge lines. These are the areas of most interest to recreation users.

Hiking routes, alpine access routes, and potential canoe portages were also explored to provide "on the ground" information to those users interested in these kinds of opportunities. When appropriate Recreation Opportunities Guides (ROG's) are developed for this type of primitive recreation opportunity. These routes/transects were chosen based on ease of access as shown by topographical features on maps and aerial photos, and from on-site observations. Forest Health surveys including plant associations and general site descriptions were made so that future sites can be revisited to assess possible impact. Vegetation losses/percent disturbance are of particular concern as they represent one of the primary indicators of human behavior and impacts to the physical environment.

Social Encounters

Social encounters were recorded daily to include plane flight seeing, marine, and trail/shore encounters. It is in this area of social disturbance that elements of solitude, peace and quiet, and self reliance are being compromised. Unrestricted air traffic poses the greatest threat to the spiritual elements of wilderness. Unrestricted tour ship traffic is the second greatest impact to the elements of solitude.

Trail Condition Reports

Trail condition reports are accomplished as encountered. To document trail status, maintenance needs and social trail development.

CULTURAL OBSERVATIONS

Cultural observations are documented as encountered. They include: culturally modified trees, fish weir, old structure remains and anything else of historical or archeological interest.

STREAM OBSERVATIONS

A general description of drainages that have been traversed is recorded. This information is passed on to Fish Biologist to determine if a basin wide survey might be of value in the future. Land slide information is also collected as part of this inventory.

FOREST HEALTH

Stand exam type information including plant association is recorded in association with all plots accomplished. This information is helpful to the District Silvicultualist as baseline data in determining stand structure and to the Wildlife Biologist to establish habitat baseline data.

GEOLOGIC OBSERVATIONS

Geographic features of special interest are recorded when encountered. For example, caves, geothermal activity, soda springs, etc...

ACCOMPLISHMENT SUMMARY BY VCU

Accomplishments for each VCU visited during the 1999 field season has been summarized. Additional report information for each VCU can be found in the working files at the Misty Fiords National Monument Wilderness Office, located in Ketchikan, Alaska.



Executive Summary 1999

VCU# 7750 - Manzanita Bay

VCU Acres:	27,753 acres
Days Spent in VCU:	3
Saltwater Shoreline:	4 miles
Streams:	0 miles
Lake Shoreline:	0 miles
Forest/Muskeg:	2.5 miles
Alpine:	0 miles
Proposed Helicopter Landing Sites:	MF-17 visited
Amphibian Trap Nights:	4 trap nights
Small Mammal Trap Nights:	20 trap nights
Goshawk Surveys:	0 surveys accomplished
Marbled Murrelet Dawn Counts:	0 counts due to rain
Bald Eagle Nests:	1 new nest
Tier 1 Surveys:	No streams surveyed
Forest Health Surveys:	3 surveys completed
Total Encounters (planes):	28 planes observed
Total Encounters (tour ships):	0 tour ships observed
Total Encounters (other):	0 other encounters
Trails Hiked:	Manzanita Lake Trail hiked
Potential Recreation Sites Inventoried:	1 potential site inventoried
Existing Recreation Sites Inventoried:	1 existing site inventoried
Landslides Documented:	0 slides noted
Cultural Sites Inventoried:	0 cultural sites inventoried

General Wildlife Observations: Common song birds and sea birds were seen in abundance; Harbour seals and Bald eagles were seen. Bear and wolf sign were encountered

Status: This VCU was revisited for training purposes. 7750 is considered 100% complete and we recommend that it be revisited on at least a five year rotation due to its scenic and wildlife viewing qualities, the protected waters, and the many potential campsites and opportunities that exist in this area. The Manzanita Lake Trail attracts an additional number of visitors than would probably be seen otherwise.

Behm Canal

VCU7760

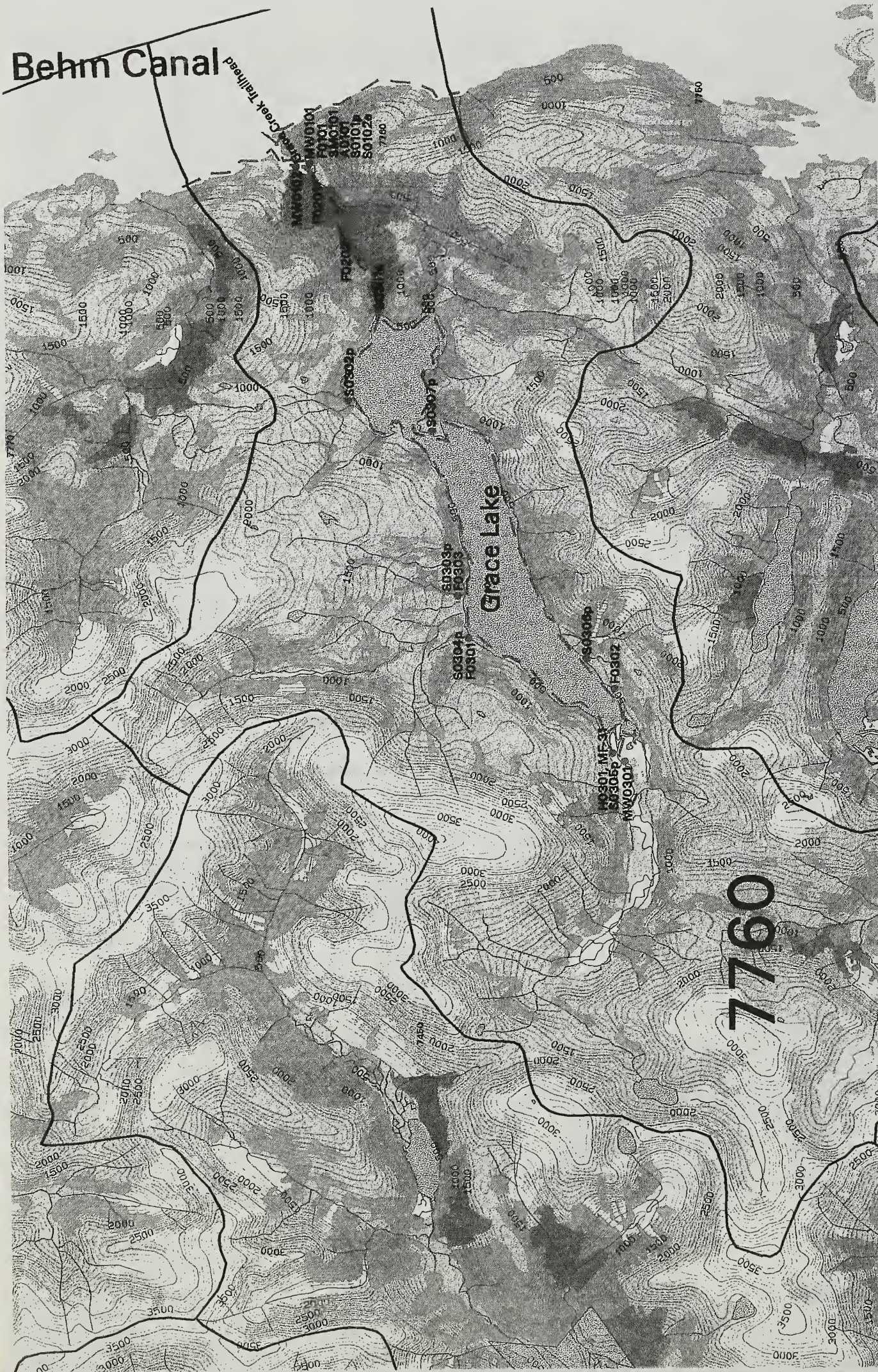
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Scale is 1 inch = 6361 feet

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Sp = Potential Recreation Sites
 Se = Existing Recreation Sites
 F = Forest Health
 SM = Small Mammal
 A = Amphibian
 NG = Northern Goshawk
 MM = Marbled Murrelet
 E = Bald Eagle Nest
 L = Landfills
 ARCH = Archaeological/Historical

Unknown Status
 Contour Interval 100 ft
 VCU Lines
 1999 route
 survey point

Low-Site Forest
 Productive Forest -volc 4/5
 Productive Forest -volc 6/7
 Non-NF Lands
 Managed Stands
 Freshwater
 Saltwater
 Streams
 Opened Roads
 Closed Roads

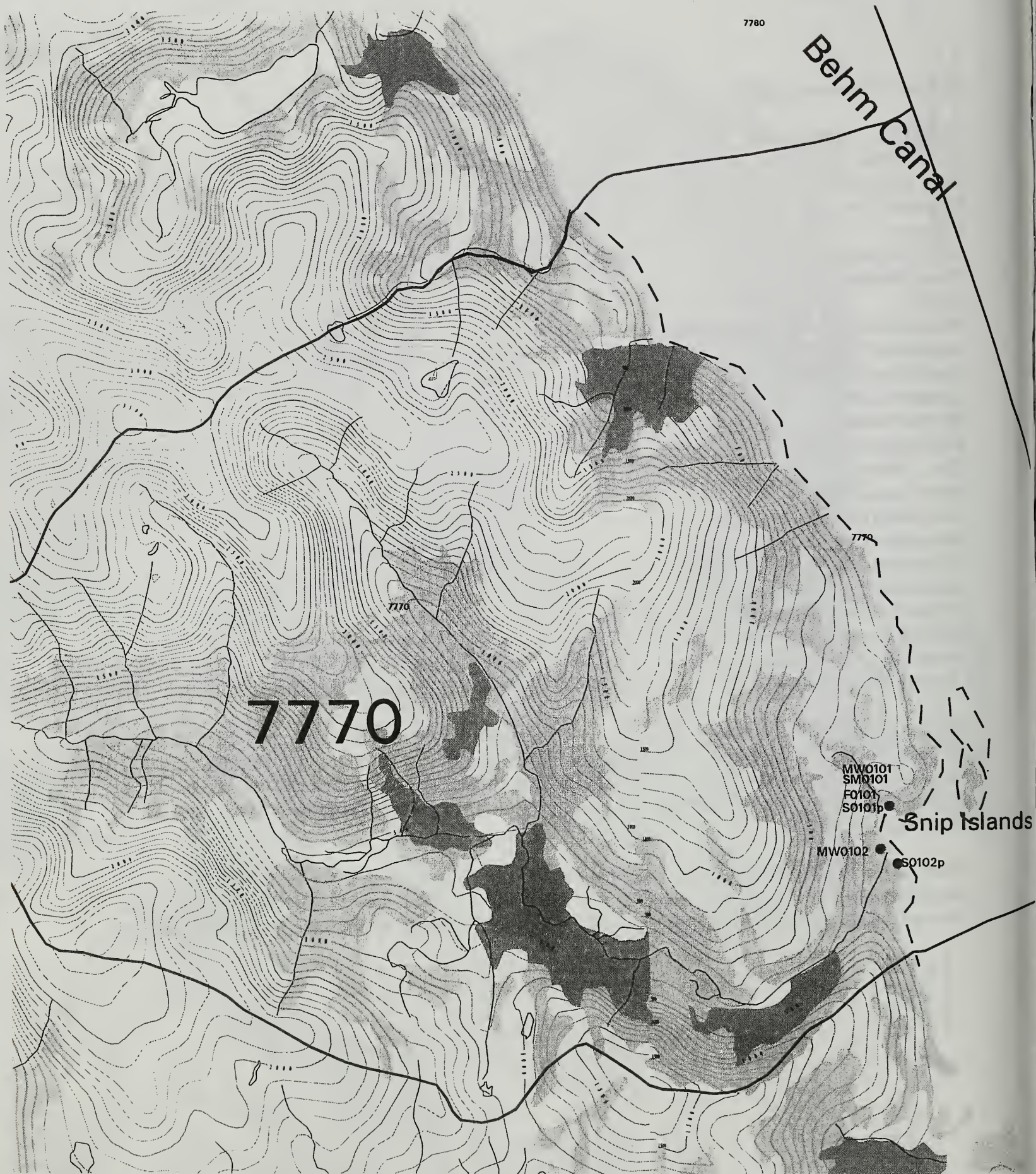
Executive Summary 1999

VCU 7760 Grace Lake

VCU Acres:	27,044 Acres
Days Spent in VCU:	4 days
Saltwater Shoreline:	3 miles
Streams:	1 mile
Lake Shoreline:	9 miles
Forest/Muskeg:	2.25 miles
Alpine:	Alpine yet to be visited
Proposed Helicopter Landing Sites:	1 Heli-site visited: MF-31
Amphibian Trap Nights:	2 trap nights: 0 specimens
Small Mammal Trap Nights:	14 trap nights: 1 Deer Mouse
Goshawk Surveys:	0 surveys accomplished
Marbled Murrelet Dawn Counts:	0 dawn counts completed
Bald Eagle Nests:	0 nests found
Tier 1 Surveys:	Grace Creek not surveyed
Forest Health Surveys:	7 surveys completed
Encounters (planes):	22 float planes observed
Encounters (tour ships):	0 tour ships encountered
Encounters (pleasure craft):	1 pleasure craft encountered
Trails Hiked:	Grace Creek Trail #712 hiked
Potential Recreation Sites Inventoried:	9 sites inventoried
Existing Recreation Sites Inventoried:	2 sites inventoried
Landslides Documented:	0 sites noted
Cultural Sites Inventoried:	0 cultural sites recorded

General Wildlife Observations: Black bear were seen throughout the drainage, and a pack of four adult and four pup wolves were seen along saltwater. A pod of orca and harbour seals were seen in the Behm Canal. Beaver sign was seen along the north shore of Grace Lake and at the head of the lake. Bald eagle, Canada geese, harlequin ducks, common mergansers and spotted sandpipers were common throughout the VCU.

Status: This VCU is currently 80% complete with the alpine remaining to be monitored. We recommend that this VCU be revisited on a five to ten year rotation due to the accessibility of Grace Lake and its scenic and recreational attributes. Physical and social impacts are moderate in this VCU.



- Low-Site Forest
- Productive Forest -volc 4/5
- Productive Forest -volc 6/7
- Non-NF Lands
- Managed Stands
- Freshwater
- Saltwater
- Streams
- Opened Roads

- Unknown Status
- Contour Interval 100 ft
- VCU Lines
- 1999 route
- survey point

- Sp = Potential Recreation Sites
- Se = Existing Recreation Sites
- F = Forest Health
- SM = Small Mammal
- A = Amphibian
- NG = Northern Goshawk
- MM = Marbled Murrelet
- E = Bald Eagle Nest
- L = Landslide
- ARCH = Archaeological/Historical

0 3246 6492

Scale is 1 inch = 3246 feet

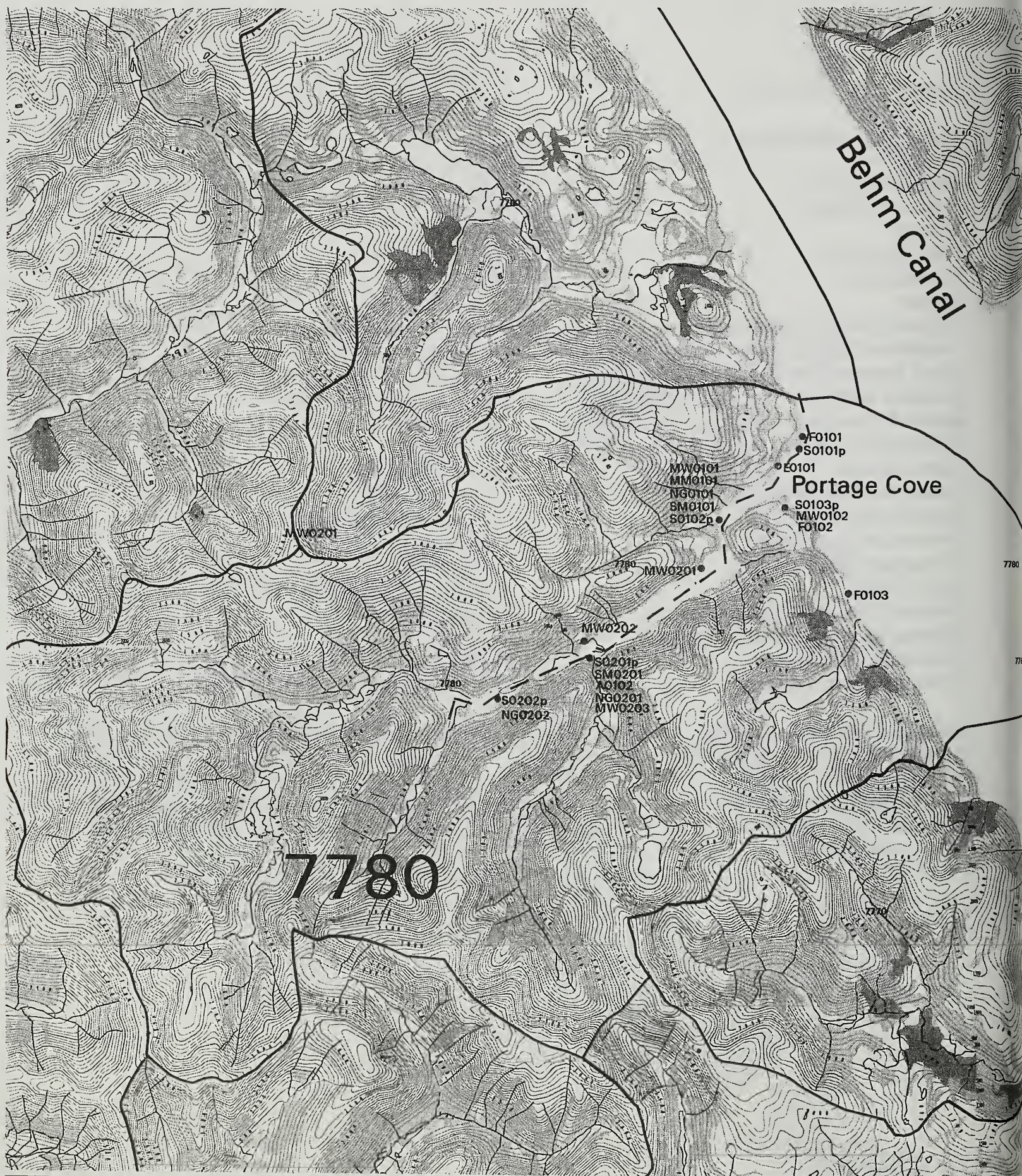
Executive Summary 1999

VCU 7770 Snip Islands

VCU Acres:	12,200 Acres
Days Spent in VCU:	2 days
Saltwater Shoreline:	4 miles
Streams:	0 miles
Lake Shoreline:	0 miles
Forest/Muskeg:	0 miles
Alpine:	0 miles
Proposed Helicopter Landing Sites:	None exist within this VCU
Amphibian Trap Nights:	2 trap nights: 0 specimens
Small Mammal Trap Nights:	14 trap nights: 1 Deer mouse
Goshawk Surveys:	None completed due to rain
Marbled Murrelet Dawn Counts:	None completed due to rain
Bald Eagle Nests:	0 nests located
Tier 1 Surveys:	None accomplished
Forest Health Surveys:	1 survey carried out
Encounters (planes):	17 float planes observed
Encounters (tour ships):	0 encountered
Encounters (pleasure craft):	1 encountered
Trails Hiked:	No trails exist within this VCU
Potential Recreation Sites Inventoried:	2 sites inventoried
Existing Recreation Sites Inventoried:	None located
Landslides Documented:	0 slides noted
Cultural Sites Inventoried:	No sites recorded

General Wildlife Observations: Black bear were common in the estuary, as were bald eagle. Great blue herons and harbour seals were observed as well.

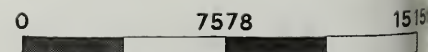
Status: We consider this VCU to be 100% complete and recommend that it be monitored on a ten year rotation. VCU 7770 appears to have minimal physical impacts and moderate social impacts from float plane traffic.



- | | | | |
|--|-----------------------------|--|-------------------------|
| | Low-Site Forest | | Unknown Status |
| | Productive Forest -volc 4/5 | | Contour Interval 100 ft |
| | Productive Forest -volc 6/7 | | VCU Lines |
| | Non-NF Lands | | 1999 routes |
| | Managed Stands | | survey points |
| | Freshwater | | |
| | Saltwater | | |
| | Streams | | |
| | Opened Roads | | |

Sp = Potential Recreation Site
 Se = Existing Recreation Site
 F = Forest Health
 SM = Small Mammal
 A = Amphibian
 NG = Northern Goshawk
 MM = Marbled Murrelet
 E = Bald Eagle Nest
 ARCH = Archaeological/Historical
 L = Landslide

VCU7780



Scale is 1 inch = 7578 feet

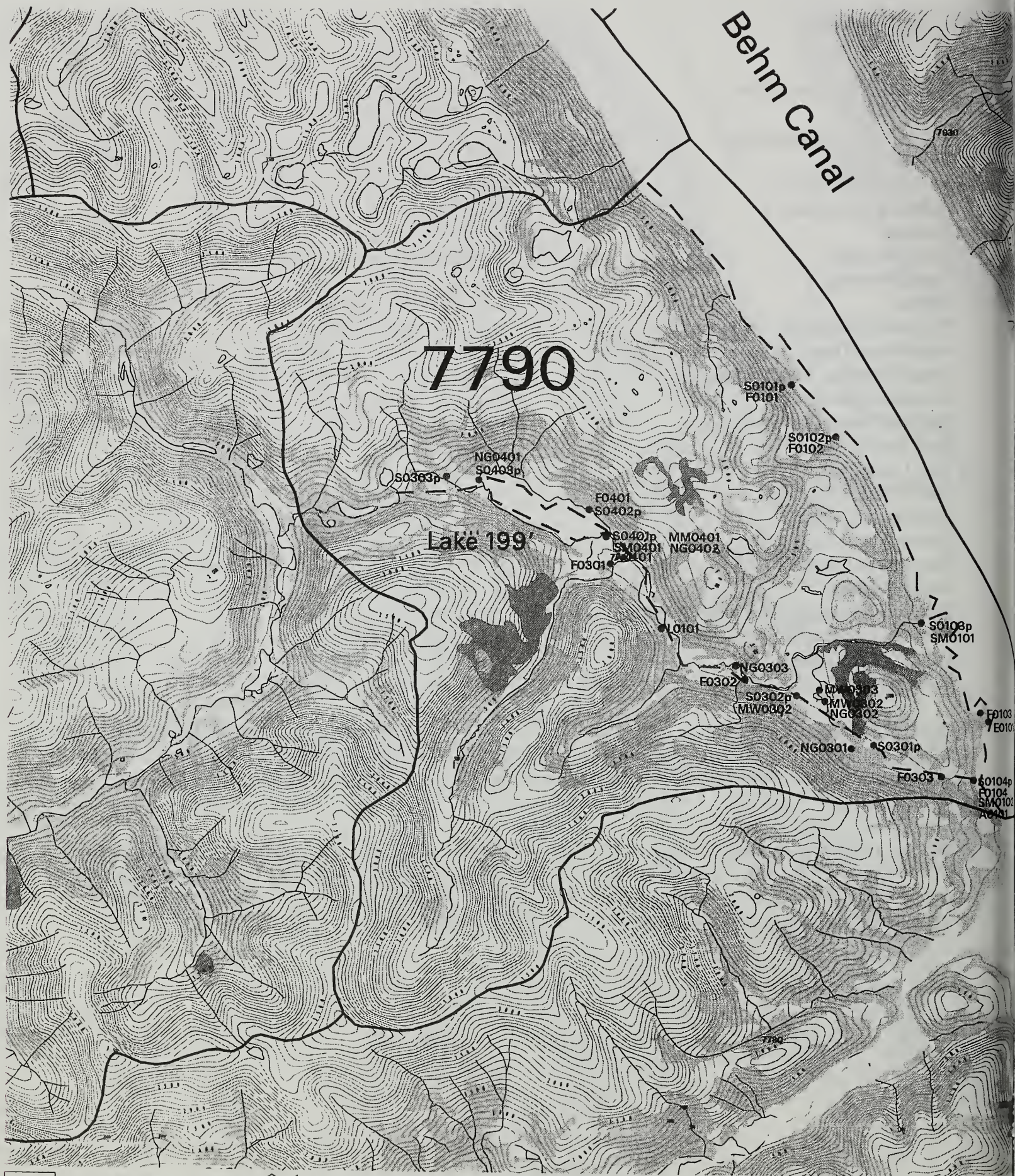
Executive Summary 1999

VCU 7780 Portage Cove

VCU Acres:	36,524 Acres
Days Spent in VCU:	4 days
Saltwater Shoreline:	6.5 miles
Streams:	3 miles
Lake Shoreline:	No lake shoreline exists w/i this VCU
Forest/Muskeg:	2 miles
Alpine:	Alpine yet to be visited
Proposed Helicopter Landing Sites:	None within this VCU
Amphibian Trap Nights:	6 trap nights: 0 specimens
Small Mammal Trap Nights:	74 trap nights: 3 deer mice, 1 red-backed vole
Goshawk Surveys:	3 surveys accomplished: 0 response
Marbled Murrelet Dawn Counts:	1 dawn count conducted: 0 counted
Bald Eagle Nests:	1 nest located
Tier 1 Surveys:	Portage Creek
Forest Health Surveys:	5 surveys completed
Encounters (planes):	24 float planes observed
Encounters (tour ships):	0 tour ships
Encounters (pleasure craft):	2 pleasure craft
Trails Hiked:	No trails exist in this VCU
Potential Recreation Sites Inventoried:	5 potential sites inventoried
Existing Recreation Sites Inventoried:	0 existing sites located
Landslides Documented:	0 slides noted
Cultural Sites Inventoried:	0 cultural sites recorded

General Wildlife Observations: Black bear were seen frequently in the Portage Cove drainage and wolves were heard up Portage Creek; Bald eagle, common mergansers, goldeneye, spotted and western Sandpiper, Canada geese, and harlequin ducks were seen within this VCU. An orca was observed in the Behm Canal.

Status: This VCU is currently only 75% complete, with the remainder of the drainage and alpine left to be surveyed. VCU 7780 is considered to have minimal physical impacts and moderate social impacts due to the float plane traffic overhead. We recommend monitoring of this VCU on a five to ten year rotation given the beauty of Swedish Meadows and the ease of access.



- Low-Site Forest
- Productive Forest -volc 4/5
- Productive Forest -volc 6/7
- Non-NF Lands
- Managed Stands
- Freshwater
- Saltwater
- Streams
- Opened Roads

- Unknown Status
- Contour Interval 100 ft
- VCU Lines
- 1999 route
- survey point
- Sp = Potential Recreation Site
- Se = Existing Recreation Site
- F = Forest Health

NG = Northern Goshawk
 MM = Marbled Murrelet
 E = Bald Eagle Nest
 ARCH = Archaeological/Historical
 L = Landslides

0 5681 11362
 Scale is 1 inch = 5681 feet

VCU779

Executive Summary 1999

VCU 7790 Lake 199'

VCU Acres:	18,175 Acres
Days Spent in VCU:	4 days
Saltwater Shoreline:	7 miles
Streams:	3 miles
Lake Shoreline:	2.5 miles
Forest/Muskeg:	2 miles
Alpine:	No alpine visited in this VCU
Proposed Helicopter Landing Sites:	MF-22 inventoried
Amphibian Trap Nights:	2 trap nights: 0 specimens
Small Mammal Trap Nights:	19 trap nights: 0 specimens
Goshawk Surveys:	5 surveys accomplished: 0 response
Marbled Murrelet Dawn Counts:	1 dawn count completed: 2 M.Murrelets
Bald Eagle Nests:	1 nest located
Tier 1 Surveys:	Drainage 199'
Forest Health Surveys:	7 surveys completed
Encounters (planes):	20 float planes observed
Encounters (tour ships):	0 tour ships encountered
Encounters (pleasure craft):	0 pleasure craft encountered
Trails Hiked:	No trails exist within this VCU
Potential Recreation Sites Inventoried:	8 sites inventoried
Existing Recreation Sites Inventoried:	0 sites located
Landslides Documented:	1 slide noted
Cultural Sites Inventoried:	0 cultural sites recorded

General Wildlife Observations: Black bear were seen throughout the VCU and wolf sign was prevalent. Canada geese, common loons, mergansers, and American dippers were observed.

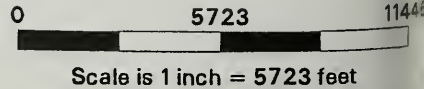
Status: This VCU is considered to be 100% complete, with a recommended ten year rotation for repeat monitoring. No physical impacts were noted (minus the hand-logging along saltwater) and social impacts are considered moderate.



- Low-Site Forest
- Productive Forest -volc 4/5
- Productive Forest -volc 6/7
- Non-NF Lands
- Managed Stands
- Freshwater
- Saltwater
- Streams
- Opened Roads

- Unknown Status
- Contour Interval 100 ft
- VCU Lines
- 1999 routes
- survey point

- Sp = Potential Recreation Site
- Se = Existing Recreation Site
- F = Forest Health
- SM = Small Mammal
- A = Amphibian
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- MM = Marbled Murrelet
- E = Bald Eagle Nest
- L = Landslide
- ARCH = Archaeological/Historical



VCU7940

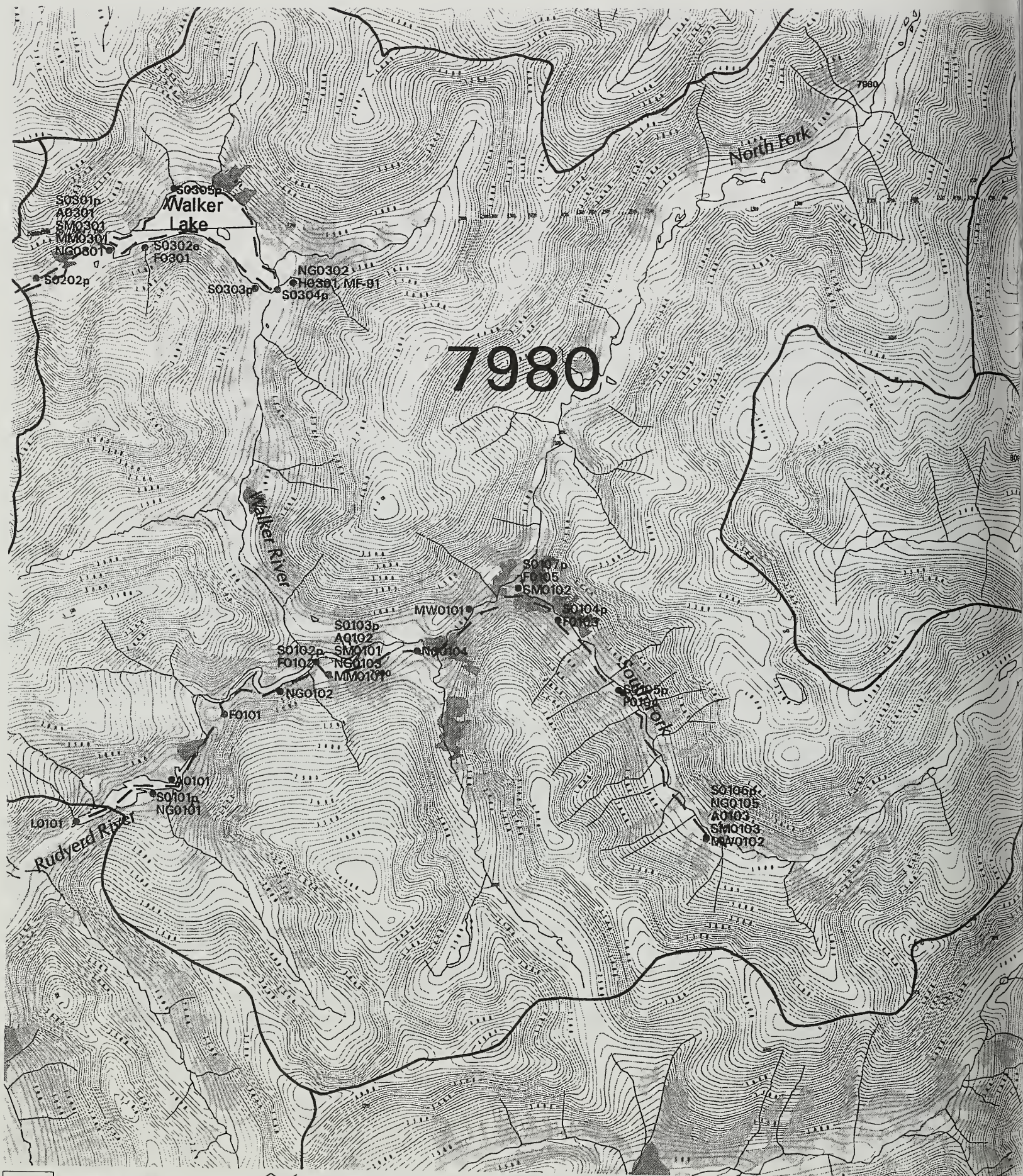
Executive Summary

VCU 7940 - Upper Chickamin River

VCU Acres:	43,938 Acres
Days Spent in VCU:	6 days
Saltwater Shoreline:	0 saltwater miles
Streams:	11.5 miles
Lake Shoreline:	8 miles
Forest/Muskeg:	3.5 miles
Alpine:	0 alpine miles
Proposed Helicopter Landing Sites:	1 helicopter site visited, MF-17
Amphibian Trap Nights:	10 trap nights, 0 specimens
Small Mammal Trap Nights:	73 trap nights: 2 deer mice, 1 vole
Goshawk Surveys:	4 surveys completed: 0 response
Marbled Murrelet Dawn Counts:	2 counts accomplished: 0 counted
Tier 1 Surveys:	Leduc L. drainage, Chickamin R.
Forest Health Surveys:	4 surveys completed
Bald Eagle Nests:	0 Eagle nests found
Encounters (planes):	23 float planes, 1 helicopter
Encounters (tour ships):	0 ships encountered
Total Encounters (other):	0 other encounters
Trails Hiked:	No trails exist within this VCU
Potential Recreation Sites Inventoried:	Eleven sites inventoried
Existing Recreation Sites Inventoried:	Two sites inventoried
Landslides Documented:	0 slides noted
Cultural Sites Inventoried:	0 sites recorded

General Wildlife Observations: Brown bear and wolf sign were present throughout the VCU (minus Leduc Lake), and adult wolves and young were heard in the Chickamin wetlands. The wetlands also provide habitat for a good number of bird species, some of which are not found elsewhere in Misty Fjords. Bald eagle and harbour seals were seen along the river corridor as well. **A new species of small mammals was identified (*Phenacomys intermedius*) Heather Vole, this type of information is exactly what we are looking to confirm and document for the purpose of inventorying the existing conditions of MFNMW.**

Status: This VCU still requires more time to complete the survey of the river corridors: the Leduc, mainstem Chickamin, and the South Fork Chickamin. Physical impact is minimal while traditional use is moderately obvious throughout the system inventoried. Social impacts are moderate due to the flight path of the float planes and the helicopter passing overhead. This VCU should be monitored on a five to ten year rotation given its attraction as a recreational destination with access to the glaciers. The recreation opportunities in these drainages are outstanding.



- | | | | |
|--|------------------------------|--|-------------------------|
| | Low-Site Forest | | Unknown Status |
| | Productive Forest - volc 4/5 | | Contour Interval 100 ft |
| | Productive Forest - volc 6/7 | | VCU Lines |
| | Non-NF Lands | | 1999 routes |
| | Managed Stands | | survey point |
| | Freshwater | | |
| | Saltwater | | |
| | Streams | | |
| | Opened Roads | | |

Sp = Potential Recreation Site
 Se = Existing Recreation Site
 F = Forest Health
 SM = Small Mammal
 A = Amphibian
 NG = Northern Goshawk
 MM = Marbled Murrelet
 E = Bald Eagle Nest
 L = Landslide
 ARCH = Archaeological/Historical

0 6261 12522
 Scale is 1 inch = 6261 feet

VCU7980

Executive Summary 1999

VCU 7980 Rudyerd River/Walker Lake

VCU Acres:	51,852 acres
Days Spent in VCU:	11 days
Saltwater Shoreline:	No saltwater exists in this VCU
Streams:	9.5 miles
Lake Shoreline:	3.5 miles
Forest/Muskeg:	3 miles
Alpine:	No alpine visited in this VCU
Proposed Helicopter Landing Sites:	1 site visited: MF-91
Amphibian Trap Nights:	12 trap nights: 0 specimens
Small Mammal Trap Nights:	104 trap nights: 3 deer mice, 3 red- backed voles
Goshawk Surveys:	7 surveys accomplished: 0 response
Marbled Murrelet Dawn Counts:	2 dawn counts conducted: 0 counted
Tier 1 Surveys:	Rudyerd River
Forest Health Surveys:	5 surveys completed
Bald Eagle Nests:	0 nests found
Encounters (planes):	27 planes observed
Encounters (tour ships):	0 tour ships
Encounters (pleasure craft):	0 other encounters
Trails Hiked:	No trails exist in this VCU
Potential Recreation Sites Inventoried:	7 potential sites inventoried
Existing Recreation Sites Inventoried:	0 existing sites located
Landslides Documented:	1 slide noted
Cultural Sites Inventoried:	0 cultural sites recorded

General Wildlife Observations: Black and brown bear and beaver were seen frequently; A redtail hawk and possible nest were found; a porcupine was observed as well as a few chews, two wolves were heard and much sign was encountered; Many Canada geese were seen, harlequins, common mergansers, Barrow's goldeneye, bald eagle and belted kingfisher were common.

Status: This VCU is presently only 50% complete. Two potential alpine access routes present options for further surveying, and the Walker River drainage could provide a circuit from Rudyerd Bay to Walker Cove via Walker Lake. This VCU is considered to have minimal physical impact. Social impact ranges from heavy to moderate, as flight-seeing tours turn around approximately one mile into the VCU on Rudyerd River and float planes fly into Walker Lake; two additional planes were observed flying the South Fork of the Rudyerd to Hyder. This VCU should be put on a five to ten year rotation, considering the additional option of crossing to the Portland Canal via the South fork of Rudyerd River (if the waterfall is passable).

Executive Summary 1999

VCU 7990 Walker Cove

VCU Acres:	38,522 Acres
Days Spent in VCU:	6 days
Saltwater Shoreline:	20 miles
Streams:	3 miles
Lake Shoreline:	0 miles
Forest/Muskeg:	3 miles
Alpine:	0 miles
Proposed Helicopter Landing Sites:	None exist within this VCU
Amphibian Trap Nights:	Four trap nights: 0 specimens
Small Mammal Trap Nights:	38 trap nights: 1 deer mouse
Goshawk Surveys:	2 surveys completed: 0 response
Marbled Murrelet Dawn Counts:	0 counts accomplished
Bald Eagle Nests:	No eagle nests located
Tier 1 Surveys:	Walker Creek
Forest Health Surveys:	6 surveys completed
Encounters (planes):	6 float planes observed
Encounters (tour ships):	0 cruise ships observed
Encounters (pleasure craft):	4 pleasure craft encountered
Trails Hiked:	No trails exist within this VCU
Potential Recreation Sites Inventoried:	5 potential sites inventoried
Existing Recreation Sites Inventoried:	0 existing sites located
Landslides Documented:	0 slides noted
Cultural Sites Inventoried:	One archaeological site recorded

General Wildlife Observation: A brown bear sow with cub and a boar were seen in Walker Cove, and sign was present in all other drainages. Harbour seals with pups were observed using Walker Cove as a protected haul-out during blustery weather. Beaver were seen in the upper reaches of Walker Creek. Red-throated and common loons, common mergansers, harlequin ducks, bald eagle, marbled murrelets and pigeon guillemots were common on saltwater. Canada geese and mergansers were both seen with young up Walker Creek.

Status: Monitoring of this VCU is believed to be 100% complete, and we recommend re-visiting the area on a five year rotation due to the heavy use the area receives as a spectacular glaciated cove. At present physical and social impacts are considered to be minimal.

Executive Summary 1999

VCU 8000 South Walker saltwater

VCU Acres:	25,403 Acres
Days Spent in VCU:	2 days
Saltwater Shoreline:	2.5 miles
Streams:	0 miles
Lake Shoreline:	0 miles
Forest/Muskeg:	0 miles
Alpine:	0 miles
Proposed Helicopter Landing Sites:	No proposed landing sites
Amphibian Trap Nights:	2 trap nights, 0 captured
Small Mammal Trap Nights:	0 trap nights
Goshawk Surveys:	0 surveys completed
Marbled Murrelet Dawn Counts:	0 dawn counts accomplished
Bald Eagle Nests:	0 nests located
Tier 1 Surveys:	No streams surveyed
Forest Health Surveys:	2 surveys accomplished
Encounters (planes)	5 planes observed
Encounters (tour ships):	0 tour ships encountered
Encounters (pleasure craft):	5 pleasure craft encountered
Trails Hiked:	No trails within this VCU
Potential Recreation Sites Inventoried:	1 site inventoried
Existing Recreation Sites Inventoried:	0 sites located
Landslides Documented:	None located
Cultural Sites Inventoried:	No sites recorded

General Wildlife Observation: Many harbour seals and pups were seen along the saltwater transect. Bald eagle, common mergansers, Canadian geese, and glaucous and mew gulls were common throughout the area. Two common loons and a belted kingfisher were present near Ledge Point.

Status: This VCU was revisited to complete the surveying of the saltwater shoreline leading up to Walker Cove. VCU 8000 is considered to be 100% complete. Physical impacts are considered negligible, although the social impacts are quite heavy due to pleasure craft traffic and overhead flight-seeing tours. We recommend that this VCU be revisited on a five year rotation due to the amount of visitation that the area receives.

Appendix A

RESPONSE TO TLMP MONITORING QUESTIONS

A response to TLMP monitoring questions has been prepared by VCU. Utilizing the information collected by the Wilderness monitoring crew an item by item comprehensive reponse is available.

MONITORING AND EVALUATION REPORT
Ketchikan Ranger District/Misty Fiords National Monument
FY 1999

Recreation and Tourism Question 1: Are areas of the Forest being managed in accordance with the prescribed Recreation Opportunity Spectrum (ROS) class in Forest-wide Standards and Guidelines?

Environmental analyses display change in ROS (in the case of analysis for timber sales), and all management decisions consider ROS when authorizing use, or proposing construction or reconstruction.

As managers it is difficult to use the existing ROS structure for applicability in Alaska wildernesses. Without wilderness planning and the identification of acceptable change limits we continue to amend the ROS to identify the current condition. We progressively allow more encounters and a deterioration of the remoteness and solitude elements. We do not use ROS as a prescription but as an inventory tool.

Recreation and Tourism Question 2: Is Off Road Vehicle (ORV) use causing, or will it cause considerable adverse effects on soil, water, vegetation, fish and wildlife, visitors or cultural and historic resources of the Forest?

There has been a steady increase in off road vehicle use; primarily snowmobile and ATV use in the winter and ATV and jet ski use in the summer. Harriet Hunt, Brown Mountain, and the Road 410 Area near Ketchikan and areas near Hyder are the most heavily used. The muskegs in the Brown Mountain area are receiving damage as a result of ATV use. We have not monitored these conditions in the other areas so are uncertain of the extent of impacts that are occurring. There is a need to complete a travel management plan for the Ketchikan Ranger District/Misty Fiords National Monument and identify more clearly for the public the areas open for ORV use.

TLMP RESPONSE TO MONITORING AND EVALUATION QUESTIONS AS THEY PERTAIN TO WILDERNESS

The monitoring and evaluation questions for the Standards and Guidelines presented in the Tongass Land Management Plan apply directly and indirectly to the work that the Wilderness ecosystem inventory/monitoring crew accomplishes in Misty Fiords National Monument Wilderness. We would like to utilize the data collection detailed in the Monitoring and Evaluation Guidebook to continue the evolution of surveys that this monitoring crew carries out within the Monument Wilderness. The interdisciplinary nature of the work that the crew accomplishes relies on multiple resources within the Forest Service to provide quality, useful, broad-scale, observational, baseline data. The aim, as always, is to better the protocols and hence the inventory of existing conditions within Misty Fiords National Monument Wilderness.

This is an attempt to address these questions with information obtained by field personnel in the 1999 field season, as well as describe the conditions observed on a VCU by VCU basis. The questions selected from the Guidebook are those related to the surveys carried out in the 1999 field season as they pertain to Wilderness management and more specifically to Misty Fjords National Monument Wilderness. In many cases these questions can be narrowed down to individual VCU conditions or down further yet to specific site conditions.

Wilderness Question 1: Are standards and guidelines for the management of wilderness being implemented?

In most cases the existing standards and guidelines are in compliance within the Misty Fjords National Monument Wilderness. However, there are some areas beneath the flight path between Ketchikan to Rudyerd Bay that are out of compliance in the area of social standards and solitude. There have been successes and we continue to have areas of concern in relation to social disturbance and solitude.

There has been a continued effort to acquire private inholdings through the acquisition system in Misty Fjords National Monument Wilderness (MFNMW). Not only do these acquisitions reduce our landline responsibilities but they give the agency greater ability to limit future development that could have negative impacts on the wilderness resource. In 1999, we completed acquisition of two parcels totalling 50 acres in the Unuk River area.

Administratively we have tried to set the highest example for wilderness travel, camping, and working within the monument wilderness. The standards and guidelines for wilderness management must begin with our own actions, at present, our example in many cases are the standards and guidelines for which other possibilities and thoughts for management are realized. Projects within the wilderness have been conducted using wilderness minimum tool standards. Trail and cabin maintenance, heritage resource monitoring and inventory, and fish pass maintenance have all exceeded the wilderness administrative standards, opting to set a non-motorized/mechanized example. It is the opinion of the district that it is not only our job to set the highest standards possible, but our obligation as stewards of this important resource to be the benchmark by which all other recreation use is measured against. We wish to lead by example.

Discussions continue on a proposal to supplement current skiff boating opportunities at public use cabins and trail terminuses in favor of canoes. Not only will this promote a non-motorized/mechanized, compatible recreational opportunity and an easy to use method of transportation at wilderness lakes, but the ease of installation at cabin sites can be facilitated without helicopter use. It will also be beneficial to our maintenance crews by providing them easier manual access to cabins for the purpose of accomplishing maintenance objectives. Minimizing motorized support in favor of manual methods is a criteria used to determine effectiveness and success in the field.

Our wilderness inventory/monitoring crew continues to find equipment caches at remote locations. Decisions need to be made regarding how these cached goods are to be dealt with. Any lake large enough to support plane use has the potential for finding a cache(s) of goods. Since helicopters are a fact of life, though illegal, they could in most cases easily cache goods at desired locations. The past two seasons have found cached canoes, skiffs, outboards, and fuel containers. Cached goods are a serious problem in some lower 48 wilderness areas and a concern that should be addressed here in Alaska.

Discussions continue regarding the initiation of a wilderness planning effort. This planning effort, once launched, will undoubtedly address all the issues surrounding the management of MFNMW. These issues include: flight-seeing, tour ship traffic, outfitters, aquafarming, tourism, fish and wildlife. Coordinated efforts need to be initiated utilizing adjacent land management as a partner to providing primitive recreation opportunities and the preservation of wilderness. An array of opportunities must exist to meet demand, and wilderness is but one of those opportunities that represents the most primitive end of the Recreation Opportunity Spectrum.

The current partnerships with the cruise tour industry allows the Wilderness Ranger Shipboard Interpretive Program to present strong messages on Wilderness issues, threats, and values. Leave No Trace principles and natural resource education/interpretation are presented as well. There is tremendous support from the public and partners to continue this program. The Chief's "Serving People" comment cards are the primary means of monitoring the public response to the program. Feedback from the cruise ship partners is continuous throughout the summer and they help support the program financially.

Our monitoring of outfitter/guide operations in the field included Wilderness Inquiry with their kayak tours and the three flight-seeing companies. Standards and guidelines are implemented, but goals are not always achieved as only a small fraction of use effecting the upland management is within our jurisdiction. Case in point is activity occurring on salt water and air traffic. These uses though out of our jurisdiction have definite impacts on the upland management of MFNMW. There continue to be social encounters that far exceed the standard (6 landings per site per day) established in the Tongass Land Management Plan (TLMP). The remoteness and solitude values are often exceeded as the sights and sounds of aircraft are very frequent in the primary flight paths. Conflicts between user groups are developing in spite of the informal zoning that has occurred. We are also noting changes in wildlife use patterns as a result of a new Fly/Cruise Tour that is being offered outside our jurisdiction (landing on saltwater). Most other special use permits are in compliance with standards and guides.

Elements needing continued emphasis:

- * Noise and visual impacts from motorized vessels on adjacent marine waters and air traffic increasingly affecting wilderness values outside Forest Service jurisdiction.
- * Displacement or harassment of wildlife due to motorized activities.
- * Development of private inholdings within wildernesses.
- * Flightseeing dock at the Head of Rudyerd Bay
- * Establishing Standards and Guidelines, Limits of Acceptable Change (LAC)

Wilderness Question 2: Are standards and guidelines for the management of wilderness effective in maintaining the wilderness resource?

The standards and guidelines presently established are not always entirely effective in the management of wilderness. Wilderness represents such an array of resources that each of them must be addressed separately in order to define and establish limits when necessary. Although some limits have been established conservatively in favor of wilderness, it is almost impossible to monitor and enforce those limitations. A public planning process by wilderness area, is necessary to address all the elements of wilderness management. Limits of Acceptable Change must be established addressing all issues, quantifying those limits specifically. An enforcement plan must also be developed and implemented.

An active inventory and monitoring program is critical for detecting change over time. (See attached TLMP Standards and Guidelines for wilderness management.)

The Wilderness Ecosystem Inventory Monitoring Program won the 1999 National Aldo Leopold Award for most outstanding and comprehensive wilderness inventory & monitoring program in the Nation. This program is by far the most comprehensive of its kind.

This monitoring program utilizes an ecosystem approach to monitoring Misty Fiords National Monument Wilderness. It was implemented in 1997 and continued in 1998 and 1999. This process systematically assesses the status of wilderness conditions from saltwater to alpine using traditional travel routes as transects through Value Comparison Units (VCU's) as the basis for reporting. Conclusions from the area surveyed indicate that back country physical impacts are still minimal and the opportunities are outstanding. However, Standards and Guidelines are absent for this indicator.

To maintain and improve this condition a strong education program is needed with continued monitoring to detect changes as early as possible. Social encounters, primarily flight-seeing and tour ship traffic, far exceed the Standards and Guidelines outlined in the Tongass Land Management Plan. (See TLMP Standards and Guidelines attachment.)

In the foreground, Standards and Guides have not been effective in preserving the wilderness character by maintaining a low level of social encounters along primary travel ways and areas adjacent to waterways at some locations. Air traffic and cruise ship visitation greatly impacts wildlife, visual remoteness and solitude.

Physical use and impacts are on the rise, every year brings new outfitter guide interest, additional kayakers, as well as expedition quality thrill seekers. For example: A German native attempted to traverse the whole of the MFNMW south to north. And though the southern portion of his attempt was weathered out, he did manage to complete the second portion of his journey from Wilson lake to Hyder, an impressive feat! An American couple traversed through the Portage Cove drainage and on out to Swan Lake and Carroll Inlet. These types of experiences are becoming more and more popular and are the kinds of experiences wilderness was intended to serve.

There are outside influences that are jeopardizing the health of a native sockeye run in Hugh Smith Lake. Attempts have been made to support this stock through raising fish fry to smolt in net pens on site. Little regard has been given to the consequences this action could have on the natural processes of this lake system.

Limited funding and staffing have prevented the development of a comprehensive management plan utilizing the LAC or NEPA planning processes. Planning would provide more direction and a means to measure more adequately the effectiveness of wilderness Standards and Guidelines.

Wild and Scenic River Question 1: Are Wild, Scenic, and Recreational River standards and guidelines being implemented?

The Chickamin River system was monitored this year. This system is vast and it was determined that an additional 20 days should be invested to start the 2000 season. There exist private inholdings at the mouth of the Chickamin River. There also exist an old mining trail/road that one time accessed Texas Creek at the headwaters of the Chickamin River. The river itself has been used historically and has the potential for more modern recreation opportunity in the form of jet boating, rafting, and kayaking. At present it is generally considered to be in pristine condition; however, detailed monitoring of this drainage has yet to confirm that assumption. Alaska Department of Fish and Game (ADF&G) also utilizes a temporary camp for the purpose of monitoring salmon runs. The river was traversed manually up the Leduc drainage and then on up to Leduc Lake. The remainder of the drainage remains largely unsurveyed and dictates the need to revisit this drainage in 2000.

Many opportunities exist for expanded recreation use. Ample camping sites, beautiful scenery, and a wild physical character continue to exist in this system. Additional issues affecting the wild character of this drainage could be identified as more is learned from future monitoring visits.

The Standards and Guidelines, like wilderness, are also in need of more specific issue driven limits. A solid inventory of existing conditions needs to be accomplished in order to accurately identify issues. At present and to the best of our knowledge the existing Standards and Guidelines are being implemented, yet outside influences (overflights) are having a detrimental effect on the social element of the resource.

Wild and Scenic River Question 2: Are Wild, Scenic, and Recreational River standards effective in maintaining or enhancing the free flowing conditions and outstandingly remarkable values at the classification level for which the river was found suitable for designation as part of the national Wild and Scenic River System?

The Chickamin system receives a moderate amount of flight-seeing traffic. As limits begin to be realized in the Rudyerd Bay drainage, alternative destinations will be sought and Walker Cove, the Chickamin Unuk Rivers would be prime locations for this dispersal of use. Existing use in this drainage is within the allowable Standards and Guidelines. Estimated minimum cost of monitoring Misty Fiords National Monument Wilderness \$60,000 annually. Specific Standards and Guidelines are absent for the Wild and Scenic River designation.

The wilderness monitoring crew traverses many of the drainages within each VCU due to route selection, surveying for recreational sites and encounters as well as wildlife. Recreational routes are described, and vegetation surveys are carried out at the individual sites to establish the groundwork for further monitoring. Further monitoring recommendations are given in increments of five to ten years based on the level of activity found at the time of inventory. Standards and Guidelines direct monitoring on a five year cycle for designated *and* proposed Wild and Scenic Rivers; hence the monitoring crew's protocol needs to be updated to meet this directive. Encounters are documented on a daily basis and noted with their corresponding ROS classification, and any visual surveys are completed on an as-encountered basis. The quality of the river experience is written up in specialist reports as determined from condition surveys and social physical impacts observed.

VCU's 7930 and 7940

The Chickamin and Leduc Rivers are large glacial outwash streams that originate in glacial fields and flow through a tremendous valley with towering ridges surrounding. The river corridor has a wide floodplain vegetated with black cottonwood, Sitka alder and willow. The river system was recommended in TLMP for designation as a Wild River.

A good deal of mining occurred in the valley historically, and marten trapping occurred up the Leduc drainage. Downed logs obstructing the main channel have been cut for safe passage up the mainstem of the Chickamin as far as the wetlands and up the Leduc River beyond the entrance of the Leduc Lake drainage. Aside from the historical use observed during the inventory, the only other physical impact observed was a cabin located approximately two miles upriver from saltwater on the river-right bank. The cabin is not visible until you are right up on it, and the existing structure appears to be the framework for a canvas tent. A 50 gallon oil barrel, chimney pipe, and plastic are the only obtrusive remnants; however, the facility falls outside the wilderness parameter and should probably be dealt with.

Social impacts are moderate within the two VCU's, and do not yet deem any adjustments within the primitive ROS classification. Flight-seeing does occur within the Chickamin drainage and should be addressed with respect to regulating air traffic prior to an established pattern of heavy use. One to two planes a day is enough to alter the experience in a Wild and Scenic River system, as was observed on the ground. Two proposed helicopter landing sites fall within the river corridor along King Creek, and these palustrine meadows were inventoried for such use. Not only are the meadows unable to support any use without showing signs of disturbance, but such activity would diminish the value of the system as Wild and Scenic.

There are many other elements of wilderness monitoring that include an array of resources that have specific standards and guidelines identified in the Tongass Land Management Plan (TLMP). They include: Air Quality, Beach and Estuary Fringe, Facilities, Fish, Forest Health, Heritage Resources, Karst and Cave Resources, Lands, Minerals and Geology, Recreation and Tourism; Riparian; Scenery; Soil and Water; Subsistence; Threatened, Endangered and Sensitive Species, Trails, Transportation, Wetlands, Wildlife. I will briefly respond to each of these individually as they pertain to the Misty Fiords National Monument Wilderness.

FISH HABITAT

1) Are fish and riparian standards and guidelines being implemented? 2) Are fish and riparian standards and guidelines effective in maintaining or improving fish habitat?

The wilderness monitoring crew works toward completing Tier 1 surveys for the watersheds visited. In addition, we were verifying location (or existence) of streams on the present GIS layer as well as the process group and channel type given. In assessing channel conditions we look at channel width and incision, bed width, bankfull depth, gradient, substrate, and the presence of barriers. For MFNMW we are focusing upon finding out what exists at a basic level. With the time investment of fish biologists and hydrologists, perhaps these watersheds could be used as controls in evaluating and monitoring the health of streams in timber units; not to mention the information that could be gleaned for studying the health of fish populations.

VCU 7760

We were unable to walk Grace Creek due to route selection and surveying the Grace Lake Trail. The sea level stand of timber (approximately 100 acres) has been clear-cut on the north side of the drainage via hand-logging that took place 1951-1955. Pinks were seen returning to spawning grounds over one mile up Grace Creek.

VCU 7770

None of the small drainages were traversed within this VCU. The stream entering just west of Snip Islands supports numerous black bear, with pink salmon observed in the estuary.

VCU 7780

We walked 3.5 miles of the Portage Creek drainage, observing Pink and Chum the length we traveled. Portage Creek experiences tidal influence almost two miles upstream with wide palustrine meadows lining the creek on either bank. Data was obtained on process groups and channel type for the 3.5 miles of Portage Creek as well as .5 miles of a tributary flowing southeast into the mainstem.

VCU 7790

Tier 1 surveys were completed for 2.5 miles of the stream draining from Lake 199'. Juveniles were trapped at the lake as well as seen throughout the upper reaches of the stream. A landslide has choked off the stream approximately one mile below the lake, forming a rock chute barrier.

VCU 7930

The 10.5 miles of the Chickamin River that fall within the VCU boundaries were surveyed for process group and channel type. The watershed is a large glacial outwash system, braiding around sand bars in the upper reaches and around islands in the lower reaches. A good number of logs and downed trees have been deposited in the upper sections of the channel. Pink salmon were seen returning to spawning grounds in the upper reaches as well as in the Choca and King Creek mouths. Juveniles were trapped throughout the system.

VCU 7940

Tier 1 surveys continue on the Chickamin River mainstem up to the confluence with the South Fork of the Chickamin River. A juvenile King was trapped as were a good number of Coho and a couple of other species. Pinks were again seen throughout the system.

The Leduc Lake drainage was surveyed to process group for the most part. Two reaches that were not on the current GIS layer were surveyed down to channel type. No juveniles were captured at either the lake or in the channel.

VCU 7980

We surveyed approximately six miles of Rudyerd River from saltwater on up the South Fork. A fairly recent (post 1950's) landslide has choked off the channel approximately 1.5 miles from saltwater creating a rock chute barrier and flooding a one-mile long section from valley wall to valley wall immediately above the slide. Juvenile fish were trapped below the rock barrier. Another barrier exists three miles from saltwater - fairly major, with a height of over 100' as the stream goes around the corner - where the channel enters a narrow gorge.

The inlet stream for Walker Lake was not on the GIS layer. The stream from the pass down to the lake was classified to process group only. No juveniles were caught.

VCU 7990

Walker Creek was surveyed to channel type in the lower reach, with a change in the GIS layer from a MM to an ES process group. We were only able to verify process groups for the remainder of Walker Creek due to route selection. No juveniles were captured.

HERITAGE RESOURCES

1) Are heritage resource standards and guidelines being implemented? 2) Are heritage resource standards and guidelines effective in protecting heritage resources as expected in the Forest Plan?

The wilderness monitoring crew works toward identifying, photographing, and mapping sites. District archaeologists are notified of anything found and the findings are written up in specialist reports for each VCU.

VCU 7990

The SEALASKA site located within Walker Cove receives little disturbance. There is sign of visitation, yet even that appears to be minimal and from years past.

VCU 7930

Historical Site #273 receives modern day recreational use as the cove at Hut Point provides a nice protected beach on the east side of Behm Canal. The point has a social trail system leading from "tent pad" to "tent pad," and the forest floor remains open. Remnant ceramic sherds can still be found in the intertidal zone.

A good deal of hand-logging occurred in the coves within VCU 7930. At Robinson Creek an old camp replete with rusty cans, broken glass, and a catch pool is connected to a clear-cut of about 150 acres in size.

SCENERY

1) Are the standards and guidelines effective in attaining the adopted visual quality objectives established in the Forest Plan?

The wilderness monitoring crew maintains a database documenting tour ships and pleasure craft on an as-encountered basis. The objective of such data collection is to record increases in use over time and to document the impacts on the quality of experience in Misty Fiords National Monument Wilderness. As the Standards and Guidelines are directed at timber harvest (an issue for the VCU's bordering on the KRD boundary, 7540 as an example), the scope needs to change somewhat so as to address the scenic quality issues as seen in MFNMW. A large cruise ship in Rudyerd Bay (VCU's 8020 and 8030) is a major obstruction within that viewshed. The number of float planes overhead likewise alters the scenic attributes of the wilderness area, not to mention the aural which receives no mention in the Monitoring and Evaluation Guidebook.

VCU's 7760, 7770, 7780, and 7790

These VCU's on the western side of the Behm Canal receive moderate float plane traffic overhead, altering the visual and aural qualities of the wilderness. This is an issue that needs to be considered, as no standard has been developed to even begin to define levels of acceptable change.

Granted, all of this bases itself upon some form of regulation, yet another issue that has not yet been addressed.

VCU's 7930, 7940, and 7980

The VCU's located on the eastern side of the Behm Canal receive major flight-seeing traffic, hence serious social impacts to both the scenic and audial attributes that should be protected within a wilderness area. MFNMW needs to establish a standard as of yet addressing both the regulation of air traffic and the level of acceptable disturbance within the Monument boundaries. These viewsheds capture the drone of the planes and helicopters long before and/or after the plane is in sight, creating surround sound for longer than desired.

Freshwater landings on Leduc (7940) and Walker (7980) Lakes are yet another assault on the scenic qualities of the viewshed. The Standards and Guidelines establish a maximum of three freshwater landing per day. On a rainy, overcast day in June, two planes were observed on Walker Lake, raising the question of how many might be landing on a high traffic day.

VCU 7990

Walker Cove likewise lies within the flight path of flight-seeing tours, disturbing the scenic and audial attributes expected in a wilderness area. While Walker Cove does not see the cruise ship traffic that Rudyerd Bay does, the viewshed is very similar. Any mammoth ship makes the scene look like a Grade B Hollywood movie, i.e. unreal.

RESEARCH

1) Have identified high-priority information needs been fulfilled?

The wilderness monitoring crew carries out a number of generalist surveys to assist in establishing baseline data for MFNMW. Much of the data determines presence and absence in various habitat types for marbled murrelets and northern goshawks. The amphibian trapping looks for geographic distribution of frogs, targeted at the spotted frog specifically. Small mammal trapping looks at geographic distribution of species and is accomplished through collaboration with the University of Alaska. Other miscellaneous wildlife observations are recorded with the hope of identifying uncommon sitings or nests.

The wilderness monitoring crew would like to be able to work with others in coordinating research projects in the field. As of yet, potential projects have only been discussed; an actual list has yet to be established and advertising of projects has not occurred.

VCU's 7980 and 7990

A University of Alaska graduate student trapped small mammals in MFNM during the 1999 field season. The project was targeting red-backed voles (*Clethrionomys spp.*) to study the distribution of subspecies and where the range of two particular subspecies might overlap.

RECREATION AND TOURISM

1) Are areas of the Forest being managed in accordance with the prescribed ROS class in Forest-wide Standards & Guidelines?

The wilderness monitoring crew reconnoiters MFNMW systematically, prioritizing the terrain covered within each VCU according to current use or potential use. Shoreline along saltwater

receives first priority, followed by lakes large enough to support float plane landings, sub-alpine ridge systems utilized by hunters, and finally any drainages that has the potential for recreation use from hunting /fishing to jet boating/kayaking/rafting.

Surveys look for existing and potential sites and route possibilities, as well as document and quantify encounters during the course of the day. When existing sites are located they are mapped and photographed. Plots are surveyed within both potential and existing sites to determine levels of disturbance and establish a basis for further monitoring. The encounters are broken down into 5 categories: float planes, cruise ships, motorized pleasure craft, non-motorized pleasure craft, and human encounters. Visual surveys are conducted on an as-encountered basis for both existing structures and cruise ships seen within the viewshed.

All data collected is entered into a database and included in the VCU specialist reports. Recommendations for completion of monitoring and rotations for future remonitoring are given based on what was found on the ground. Forest Service personnel are notified of any items that require special attention or fall outside the scope of the Standards and Guidelines and the ROS classifications. As already mentioned, the Standards and Guidelines do not adequately address the issue of air traffic and its related wildlife disturbance and disruption of the wilderness experience.

VCU 7980

VCU falls under the ROS primitive classification, and conditions fall within the specifications designated. EXCEPT for the a one to two mile stretch of Rudyerd River that falls under the flight path of the flight-seeing to cruise ship exchange that takes place at the head of Rudyerd Bay. Audial impacts within the river corridor are compounded by the granite walls, leading to extended periods of loud droning in surround sound.

Walker Lake is a flight-seeing destination, with landings on the lake and visitation to a tributary on the northern side of the lake. The Standards and Guidelines allow for three freshwater landings per day(under permit). On an overcast, rainy day in June two planes were observed landing on the lake proper, leading us to wonder what traffic might be like on a clear, high-traffic day.

Approximately five pounds of trash were hauled out by the crew; they were unable to remove the remaining ten plus pounds of debris left along the lakeshore.

VCU 7990

Walker Cove falls under the semi-primitive motorized ROS category due to the majority of the terrain covered in this VCU bordering on saltwater. Visual surveys should be adjusted slightly to account for cruise ships and pleasure craft seen within the fjords. One single craft forms an obstacle (sightly or unsightly) within the viewshed. Conditions fall within the designated classification system.

VCU 7940

The Leduc River and the upper reaches of the Chickamin River fall within a primitive ROS classification. VCU 7940 receives flight-seeing traffic through the river corridors and into Leduc Lake, yet nothing like the Rudyerd Bay watershed. The use observed falls within the acceptable parameters outlined in the Standards and Guidelines, although Leduc Lake receives a good deal of air traffic. We have similar concerns for Leduc Lake as we do for Walker Lake, as how do you regulate for the maximum number of freshwater landings per day. The crew observed one freshwater landing and one low fly-by on a clear day.

VCU 7930

The half of VCU 7930 lying along saltwater falls within a semi-primitive motorized ROS classification, the remaining interior portions of the VCU receive a primitive ROS classification. The

watershed and the coastal area conditions do not exceed the Standards and Guidelines; however, the plane traffic again infringes upon the "primitive" designation and the wilderness "experience."

VCU's 7790, 7780, 7770, and 7760

The portions of these VCU's lying along saltwater fall within a semi-primitive ROS classification while the interior sections fall under primitive. Those areas adjacent to saltwater do not preserve the characteristic wilderness values, although it could be argued that the ROS classification is suitable for these areas. A primitive classification applies to the interior of these VCU's. Float plane traffic infringes, however, on a true primitive environment. At times the drone leads those on the ground to believe that they are in a motorized primitive ROS.

KARST and CAVES

1) Are karst and cave Standards and Guidelines being implemented? 2) Are karst and cave Standards and guidelines effective in protecting the integrity of significant caves and the karst resource?

The wilderness monitoring crew notes geological features of interest on an as-encountered basis, pin-pointing the location on the map, describing, and photographing the site. Interested officials are notified and the site is reported in the specialist report.

MINERALS and GEOLOGY

1) Are the effects of mining activities on surface resources consistent with Forest Plan expectations, as allowed in approved Plans of Operations?

The wilderness monitoring crew notes anything of interest as they survey the VCU's. Historical mines need to be gleaned from the archaeological catalogs prior to inventorying in the field so as to be able to locate and survey the area. The Quartz Hill molybdenum mine may be of particular interest in the future.

SOIL and WATER

1) Are the standards and guidelines for soil disturbance being implemented? 2) Are Standards and Guidelines effective in meeting Region-10 Soil Quality Standards?

The wilderness monitoring crew locates landslides along the routes of travel within each VCU, giving GPS locations and pin-pointing the site on the topographic map. A general description of the slide is noted in the specialist report in an attempt to characterize the size, slope, and aspect if at all possible. However, many of these slides are seen from a distance and the feasibility of accessing these locations is not possible in most cases.

WILDLIFE

1) Are population trends for Management Indicator Species and their relationship to habitat changes consistent with expectations? 2) Are the population levels and associated distribution of mammalian endemic species on islands and portions of the mainland consistent with the estimates in the Forest Plan?

Misty Fiords National Monument Wilderness maintains a preserve of unique habitat types within Southeast Alaska. Very little physical habitat change occurs outside of natural disturbances; however, physical use and resulting impacts of all kinds are on the rise; the social impacts caused by the tourism industry do alter the environment and both should be closely monitored. As an example, incidental observations last year led field personnel to question whether the lack of brown bear sightings in the Rudyerd River and Nooya estuaries was due to the increased air traffic within the area. Tour ships affect marine wildlife with the wakes thrown. Flight-seeing tours affect big game in sub-alpine areas as the aircraft flies by repeatedly for viewing and photo opportunity.

The monitoring crew collects data on mammal and avian species observed, recording the location of sightings or nests/dens on topographical maps and in the specialist report. Surveys aimed primarily at detecting presence or absence and distribution of species are carried out for a few of the Management Indicator Species.

Amphibian surveys target the spotted frog (any frogs) so as to determine whether or not the range of the species; thus far the crews have not located any species other than the rough skinned newt. Spotted frogs have been located up the Unuk River.

Northern goshawk surveys are carried out to determine the presence of any individuals; once observed, locating possible nests becomes the next priority. The wilderness monitoring crew has not yet located any goshawks, although individual sightings have occurred on the Wilson/Blossom River and Grant River. Marbled murrelet dawn counts are completed with the objective of determining presence, and yes, the species is abundant. Bald eagle nests are located, given a GPS reading, and characterized as active or inactive with a brief description of the nest condition.

Small mammal trapping looks at the distribution of species, and is achieved through collaboration with the University of Alaska Museum. In addition to looking at the distribution of small mammals, the university is interested in the endemic species of red-backed vole and the overlap of subspecies.

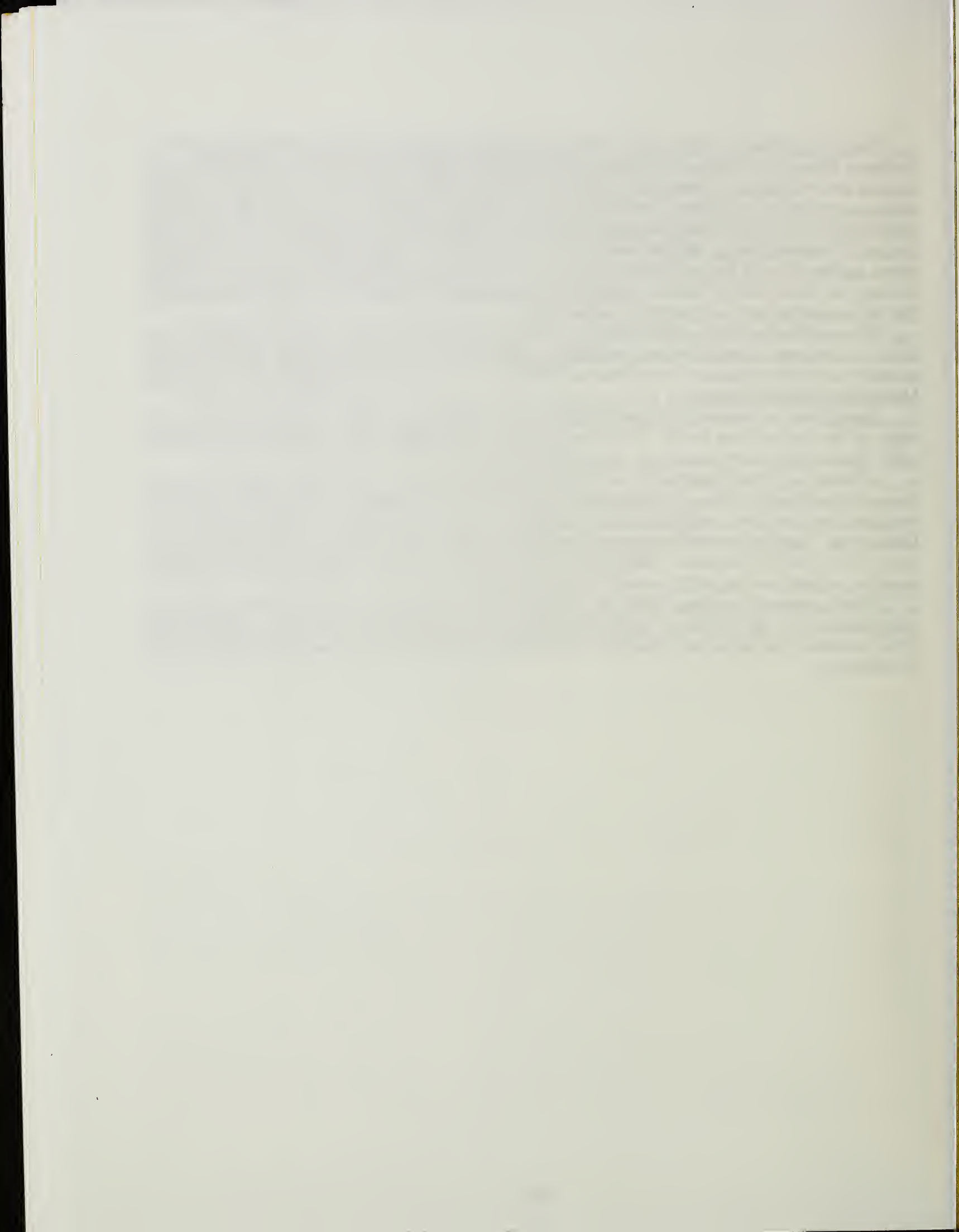
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Appendix B

TLMP STANDARDS AND GUIDELINES

The existing Wilderness TLMP Standards and Guidelines are available in this section.

Standards & Guidelines

3. When determined that a development or activity is suitable, use information in the following table in addressing the maximum amount of use for each facility or site in each Land Use Designation. The numbers in the table are guidelines; the actual numbers authorized could be larger or smaller depending on site-specific analysis. Refer to section 4.d)(3) in this section for allocation guidelines.

Maximum Recreation and Tourism Development Generally Allowed by LUD¹

Land Use Designation	Permanent Overnight Facilities (number of overnight guests)	Day-use Facilities (number of users per day)	Flight-based sightseeing (number of landings per site per day)	Boardwalk Paths and Trails	Equipment Storage	Campgrounds (# of sites per campground - includes RV sites)
Wilderness	none ²	none	3 or 6 ^{3,4}	yes	none ²	none
Wilderness Monument	none ²	none	3 or 6 ^{3,4}	yes	none ²	none
Nonwilderness Monument	none ²	none	3 or 10 ³	yes	none ²	none
Research Natural Area	none	none	none	none	none	none
Special Interest Area	case-by-case ⁵	case-by-case ⁵	case-by-case ⁵	case-by-case ⁵	case-by-case ⁵	case-by-case ⁵
Remote Recreation	10	24	10	yes	yes	none
Municipal Watershed	case-by-case	case-by-case	case-by-case	case-by-case	case-by-case	case-by-case
Old-growth Habitat	24	50	10	yes	yes	none
Semi-Remote Recreation	24/150 ⁶	50/300 ⁶	10/100 ⁶	yes	yes	10/75 ⁶
LUD II	24	50	10	yes	yes	10
Wild River	10	24	10	yes	no	none
Scenic River	100	300	50	yes	yes	40
Recreational River	150	1000	100	yes	yes	75
Experimental Forest	none	none	none	case-by-case	none	none
Scenic Viewshed	150	1000	100	yes	yes	75
Modified Landscape	150	1000	100	yes	yes	75
Timber production	150	1000	100	yes	yes	75
Minerals	case-by-case	500 ⁷	case-by-case	case-by-case	case-by-case	case-by-case

¹ The actual numbers authorized could be larger or smaller depending on site-specific analysis

² Except for ANILCA exceptions

³ Consistent with existing or adopted ROS class (3 for Primitive ROS, 6 in other ROS classes in wilderness)

⁴ Public helicopter landings are currently prohibited (11/96). A separate analysis is being completed to determine whether helicopter landings are appropriate

⁵ Must be compatible with Special Interest Area objectives

⁶ First number is for most areas within the LUD and the second is for enclaves of recreation and tourism developments

⁷ To allow for mine tours

Standards & Guidelines

ROS Class Primitive

Setting Indicators	Standards and Guidelines
Visual Quality	Not to exceed the Retention Visual Quality Objective. An Existing Visual Condition of Preservation is fully compatible and encouraged.
Access	Cross-country travel and travel on non-motorized trails and on waterways is typical. Use of airplanes, helicopters, motorboats and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities (may occur but is rare.)
Remoteness	No or infrequent sights and sounds of human activity are present. Setting is located more than 1.5 hours walking or paddling distance, or 3 miles, from any human developments other than infrequently-traveled marine travelways. Areas are generally greater than 5,000 acres, but may be smaller if contiguous with a Semi-primitive class.
Visitor Management	On-site regimentation and controls are very rare. Signing is limited to directional information and safety. There are no on-site interpretive facilities. There is great opportunity for discovery on the part of the users.
On-site Recreation Development	Structures do not exceed Development Scale I, except for public recreation cabins, (and are maintained for appropriate levels of use.)
Social Encounters	User meets less than 3 parties per day during trip. No other parties are within sight or sound of dispersed campsites or cabins. Maximum party size is generally 12 people.
Visitor Impacts	Visitor-caused impacts to resources are slight and usually not noticeable the following year. Site hardening is limited to boardwalk trails and necessary boat moorings or bearproof food caches and rustic public recreation cabins.

ROS Class
Semi-Primitive Non-Motorized

Setting Indicators	Standards and Guidelines
✗ Visual Quality	Not to exceed the Retention Visual Quality Objective. An Existing Visual Condition of Preservation is fully compatible and encouraged.
✗ Access	Cross-country travel and travel on non-motorized trails is typical. Use of airplanes, helicopters, motorboats and snowmachines for traditional activities, subsistence, emergency search and rescue, and other authorized resource management activities may occur unless specifically restricted for safety and/or resource protection purposes.
✗ Remoteness	Nearby sights or sounds of human activity are rare, but distant sights or sounds may occur. Setting is located more than ½ hour walk or paddle, or approximately ½ mile (greater or less depending on terrain and vegetation, but no less than ¼ mile) from: 1) infrequently traveled waterways; 2) roads and trails open to motorized recreation use, and 3) clearcut harvest areas. Aircraft access is only occasional. Areas are generally greater than 2,500 acres but may be smaller if contiguous with Primitive or Semi-primitive motorized classes.
✗ Visitor Management	On-site regimentation and controls are rare. Visitor information facilities may be used to interpret cultural and natural resource features, but are not elaborate and harmonize with the setting.
✗ On-site Recreation Development	Facilities and structures generally do not exceed Development Scale II and are maintained to accommodate the types and levels of use anticipated for the site. Forest Service recreation cabins are fully compatible.
✗ Social Encounters	User meets less than 10 parties per day (6 parties per day in wilderness) on trails and waterways during 80% of the primary use season. No other parties are within sight or sound of dispersed campsites during 80% of the primary use season. Maximum party size is generally 12-20 people. Outside of wilderness, larger party sizes may occur during less than 15% of the primary use season in limited locations.
✗ Visitor Impacts	Visitor-caused impacts to resources are rare and usually not long-lasting. Site hardening is limited to boardwalk trails, boat tramways, moorings and docks, bearproof food cache facilities and rustic public recreation cabins.

Standards & Guidelines

Adopted Visual Quality Objectives (VQO) for each Land Use Designation¹

Land Use Designation	Foreground	Middleground	Background	Not Seen or Non-priority
Wilderness Wilderness Nat. Monument Research Natural Area Special Interest Area ^{2,4} Remote Recreation Old-growth Habitat ⁴ LUD II ⁴	Retention	Retention	Retention	Retention
Special Interest Area ^{3,4}	Modification	Partial retention	Partial retention	Not Applicable
Semi-remote Recreation ⁴	Partial retention	Partial retention	Partial retention	Partial retention
Wild River ⁶	Retention	Retention	Retention	Retention
Scenic River ^{4,6}	Retention	Partial retention	Partial retention	Modification
Recreational River ^{4,6}	Partial retention	Modification/Partial retention ⁷	Modification/Partial retention ⁷	Maximum Modification
Scenic Viewshed ⁴	Retention	Partial retention	Partial retention	Maximum Modification
Modified Landscape ⁴	Partial retention	Modification	Modification	Maximum Modification
Timber production Minerals	Modification	Maximum Modification	Maximum Modification	Maximum Modification
Experimental Forest ⁵				
Transp. & Utility System ⁶	Modification	Not applicable	Not applicable	Not applicable
Municipal Watershed	A range of visual conditions may exist in the watershed, which are a result of the municipality's watershed management objectives. Visual impacts should be minimized as seen from Visual Priority Travel Routes and Use Areas.			
Nonwild. Nat. Monument	Visual Quality Objectives will range from Retention, in those portions of the Monument without access, to Maximum Modification in those portions developed in connection with mineral activities. Site-specific VQO's will be identified in the specific plan of operation for mineral development.			

¹ The foreground, middleground, and background Visual Quality Objectives are adopted as seen from the Visual Priority Travel Routes and Use Areas (Appendix F). Non-priority travel routes and use areas, and those areas not seen from the Visual Priority Routes and Use Areas, are managed according to the direction listed in the "Not Seen or Non-priority" column.

² Except for the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough.

³ Applies only to the developed recreation and interpretive portions of Special Interest Areas such as Mendenhall Glacier, Ward Cove, and Blind Slough. Undeveloped areas are managed according to the guidance on the previous line.

⁴ Exceptions for small areas of non-conforming developments, such as recreational developments, transportation developments, Log Transfer Facilities, and mining development, may be considered in these Land Use Designations on a case-by-case basis.

⁵ The Visual Quality Objective may vary depending on the research objectives of the Experimental Forest.

⁶ These objectives apply only to the actual corridor. The area adjacent to this LUD is managed according to the guidelines of the adjacent Land Use Designation.

⁷ Apply the Partial retention VQO in corridors where scenic quality is included as one of the "outstandingly remarkable" values for that corridor. If it is not, apply the lower VQO.

TLMP Standards and Guidelines

beach: Maintain the ecological integrity and a continuous forest corridor; allow only primitive to semi-primitive recreational opportunities; facilities must maintain visual quality standards. All facilities and any development of sites must be more than 300 feet from the mouths of intertidal channels or tidal zones.

fish: Maintain channel type and stream classifications based on continuing inventories.

forest health: Achieve the desired future condition through manipulation of insects and disease. Evaluate insect and disease impacts to resources.

heritage resources: Maintain a resource management program to identify, evaluate, preserve, and protect resources.

lands: special use

minerals and geology: Resource inventory of historic and current mining activity, regional and local geology, access and terranes.

recreation and tourism: Maintain inventories of recreation resource opportunities consistent with the ROS system and Tongass NF Recreational Places inventory. Update and maintain necessary data for any changes in class distribution to major and minor development not allowed in Wilderness.

flight-based sight-seeing: Limits landings to three per site per day in Primitive ROS, and six per site per day in other ROS classes Wilderness.

scenery: Maintain VQO standards.

soil and water: maintain a soil resource inventory, using Terrestrial ECOMAP to inventory and classify ecosystems.

threatened or endangered species: Monitor ESA species, Stellar's Sea Lions, Humpback Whales, and American Peregrine.

sensitive species: Support monitoring, research and inventory work for sensitive species (etc.)

wildlife: Monitor general habitat planning and cooperation with other agencies. Emphasize management to reduce human disturbance in high value habitat areas and during critical periods of wildlife use.

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Appendix C

PHOTO DOCUMENTATION EXAMPLES

Photo documentation has been established but not refined. The tracking of photos should be documented at the time of photo. identifying: camera and film type, speed, wide/telephoto lense, weather conditions, roll and photo numbers, location from & to, photographer, date, brief description of photo. Precise photo points should be established at all impacted areas. Slide film should be used, the best slides should be retained and prints made as necessary. Marginal slides should be disposed of.

Misty Fjords National Monument Wilderness



Misty Fjords has much to offer on the scenic scale along both saltwater and inland routes. The monitoring/inventorying of the eco-crew aims to establish baseline habitat data and levels of recreational use for the purpose of wilderness management and planning.



Recreational Uses

Flight-seeing traffic is one of the heavier social impacts seen within the Monument. The crew notes the number and location in an attempt to document the extent of traffic for future use in the planning.



Caches are encountered throughout MFNMW, concentrated for the most part along salt-water and lake shores and providing strong evidence of persistent recreational use. The issue of caches within wilderness boundaries has yet to be addressed in Alaska.



Wildlife Surveys

Amphibian trapping is one facet of the wildlife surveys carried out in MFNMW. While searching for spotted frogs, the crew has thus far observed boreal toads and rough-skinned newts.



Northern Goshawk dawn observation and blasting, Marbled Murrelet dawn counts, locating Bald Eagle nests, and trapping for Small Mammals and Amphibians are species-specific surveys that are accomplished out in



Proposed helicopter landing sites are surveyed along transect routes. Site-specific reports are written evaluating the impacts to the area based upon vegetation surveys and incidental wildlife observations.

The den is one example of the incidental wildlife observations noted throughout the season. Brown and black bear, wolves, harbour seals, river otter, orca, beaver, porcupine, songbirds and shorebirds are a few of the species identified throughout the season.

Terrain Traversed

Lining canoes up glacial rivers, bush-whacking through alder and willow shoots as well as along river corridors, traversing muskeg systems, paddling open lakes, and kayaking saltwater describe many of the routes traveled through the course of the season.



Sea kayaks are a primary mode of transportation within MFNMW. Canoe, inflatable kayaks, and foot travel are the other means used in the 1999 season.



Heavy snowfall during the 1999 winter and cool summer temperatures resulted in the majority of the transects lying in low- to mid- elevations in the '99 season. Recent snowmelt made travel along the Rudyerd River somewhat easier in sections.

Loads vary according to the transect being traveled. Inflatable kayaks, minnow traps, mouse traps, and the megaphone for goshawk blasting add to the usual gear needed for 9-16 day tours.

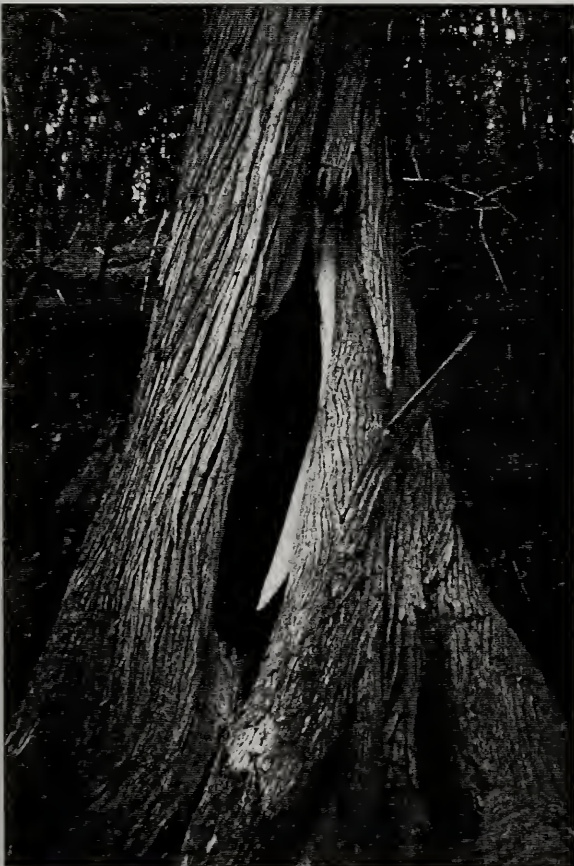


Cultural Findings, LNT Camps, and Stream Surveys



A Leave No Trace ethic has been adopted by the wilderness monitoring crew. Sites are occupied for a minimum number of days, and gear consists of a tarp, bivouac bag with sleeping bag and pad, white fuel stove, and clothing.

Conditions are constantly changing, as shown by Rudyerd River at high water. Any back country travel must take into account the different dynamics encountered and be prepared for such changes.



This was the first season for completion of Tier 1 Surveys along drainages traversed where stream segments coincided with transects traveled. Minnow traps were set to collect juvenile fish, and streams were characterized down to channel type.

Cultural and historical resources are located and reported to district archaeologists as found. MFNMW houses a wealth of archaeological and historical remains.

Appendix D

SPECIALIST REPORT EXAMPLES

A specialist report is written for the various elements of monitoring. The purpose of this report is to provide a narrative description of each area visited along with specific report information describing special points of interest like: helicopter landing sites, preliminary stream survey, recreation sites, etc...

VCU REPORT

VCU 7980 Rudyerd River/Walker Lake 51,852 acres
June 6 - 13 and 26-27, 1999

Site Description

Rudyerd River is located at the head of Rudyerd Bay, the mainstem running to the NE approximately four miles before branching. The North fork continues eight miles to the headwaters and the South fork bends southeast and then east another seven miles.

The river works its way from small subalpine lakes in a willow/alder glaciated valley down through a short, steep gorge into a narrow floodplain before emptying into saltwater. A slide has choked the river off approximately one mile upstream, backing the water up another mile and providing habitat for waterfowl. The entire area is heavily glaciated, providing for spectacular views. Granite faces rise up steeply from the valley bottom with water cascading down in numerous places.

Walker Lake falls in the northern portion of the VCU, surrounded by 4000' ridges. The route traveled crossed the VCU boundary one mile from the lake at the pass between Walker Creek and Walker Lake.

Weather Conditions

After two days of light rain, the following six days spent in the Rudyerd River system were warm and sunny. Snow melt added to the stream and river volumes significantly. The two days spent at Walker Lake had light rain.

Wildlife Accomplishments

Seven Northern Goshawk surveys were completed in this VCU. We surveyed one small muskeg due to having a raptor fly-by and kek through the forest fringe. Blasting brought the Red-tailed hawk soaring overhead and indicated the nest before it vacated the area. Two dawn observations were completed for Northern Goshawks with nothing noted. Two dawn counts were likewise carried out for Marbled Murrelets with nothing recorded. No bald eagle nests were located.

Amphibian traps were set for a total of twelve trap nights with nothing encountered. Small mammal traps were set for a total of 104 trap nights. Three deer mice and three red-backed voles were trapped (and a brown bear was well fed).

Stream Surveys

Minnow traps were set at four different points along the Rudyerd River corridor; only one juvenile was captured in the estuary area. Approximately six miles of Rudyerd River were walked for assessment of process groups with some channel typing completed. Walker Creek was assessed for the verification of process groups, with the inlet stream of Walker Lake to be added to the GIS layer.

General Wildlife

The choked up section of the river provides habitat for Canada geese, harlequin ducks, common merganser and Barrow's goldeneye. Kingfisher and harlequin were seen all along the river corridor.

Beaver have been industrious throughout the river, and four were seen in the river and in the ponds. One black bear was observed along the mainstem and one brown bear up the South Fork of the river; a lot of sign was seen everywhere. Two wolves were heard howling and some sign was seen along the mainstem of the river. A large porcupine was seen on the main stem of the river, and several porcupine chews were seen along this section.

A brown bear was observed at the Walker Lake inlet meadow, as was a beaver. Canada geese, common loons, common mergansers, tree swallows, blue grouse, and rufus hummingbirds were common at both the lake and the beaver ponds located near the lake. Spotted sandpiper nests were found in the muskegs to the east and north of the lake.

Recreation Accomplishments

The 12.5 miles traversed had seven potential sites inventoried, two of which incorporated general areas within muskeg systems. The Rudyerd River corridor lies in a classic glacial U-shaped valley, with only limited areas available for camping. The majority of the potential sites are exceptional in terms of their scenic qualities, yet they lie in sensitive muskeg areas. The remaining potential sites lie in the bottomland and are isolated salmonberry-free zones. Floodwaters would remove any of these areas from use.

The 13 miles one way was primarily along the river bottom, with sections of side-hill traversed to avoid Salmonberry and Devil's club. At high high tide one could potentially sea kayak to the falls created by the slide; alternatively, you bushwhack for one and one-half miles. The slide has backed up the river for approximately one mile, making travel along the shoreline impossible in sections due to cliff faces. An inflatable kayak or canoe bumped up and over the slide would take you almost 1.5 miles

up to the riffles where the river shoots through a gorge. From that point you move southeast through the notch, heading up and over to return to the valley floor. One mile from the notch a muskeg system makes for pleasant travel, particularly with the bear trail navigating a steep sideslope complete with cliffs. From the end of the bear trail the side-hilling continues to the first major creek entering from the south. After crossing the creek the route continues along the bottomland up the south fork of the Rudyerd. Bushwhacking gets more intense across the slide chutes, but the views get more and more spectacular. The 1999 survey ended three miles from the pass over into the Portland Canal with a view of snowfields and peak 5225'.

On the return we located an old weather balloon along the river corridor which was packed out.

Potential/existing Sites: Seven potential sites and no existing sites were surveyed within this VCU. All existing sites lie within the valley bottom, either taking advantage of muskegs up to 1/4 mile distance from the river or sanctuaries hidden in the salmonberry and devil's club.

Encounters: 24 float planes were encountered and no pleasure craft.

The Walker Lake portion of the VCU survey covers one mile over land, and about 3.5 miles of lake shore. The route from the pass down to the lake crosses fairly open forest with a sandy floor before hitting the alder thickets and the beaver complex. What appears to be a large meadow is really a marsh with the creek and sloughs criss-crossing every which way.

An old minnow trap and styrofoam from a boat float have been pushed up on the shore at the western end of the lake. We carried out the trap and some of the styrofoam, yet more styrofoam remains.

Potential/existing Sites: One existing site and six potential sites were surveyed. Five of the potential sites are located around Walker Lake in muskegs bordering on the lake shore. A couple of the sites inventoried are representative of a larger area on the lake.

The existing site lies on the southern shore of the lake, approximately 25 feet off of the water. A canoe and rowboat have been stashed against trees using a pulley system, with a kicker, fuel, PFD, oars and paddles cached in the canoe. Neither appear to have been used within the past couple of years, and the kicker still has a PROMECH tag with "Humpback Lake" taped on. A 35' social trail leads across the stream from the boats to a big stump that sits in the center of the existing trampled area. Tent poles lay scattered around, and a shovel was found 40' from the disturbed area. A social trail likewise heads south off of the lake to more debris, although it presently appears to be more of a bear trail.

The waterfalls cascading into the northern side of the lake appear to see some sight-seeing traffic. It is difficult to determine whether the area receives foot travel or flooding, although two small trees have been cut in the area between the two streams where the fall channels fork.

Encounters: Three float planes were encountered, two of which landed on Walker Lake. No pleasure craft were observed.

Heli-landing Sites: Proposed heli-landing site MF-91 was inventoried in a palustrine meadow at the SE end of Walker Lake.

Archaeology

No archaeological sites were recorded.

Summary

The Rudyerd River area is incredibly beautiful and gives one the sense of truly being in a remote section of Misty Fjords. Float plane sight-seeing traffic diminishes to nil at the falls in the gorge three miles up Rudyerd River, as they turn around at that point, eliminating the detracting drone. Wildlife viewing in the area matches the scenic splendor, and the bushwhacking has its rewards. Alpine access routes need to be explored as of yet, as the recreational potential covers a lot of ground up high; likewise the wildlife finds would be of interest.

Walker Lake sits in a neat valley, with the large meadow to the west and the surrounding ridges and waterfalls. We would like to see the remaining styrofoam cleaned out of Walker Lake, in addition to the kicker and fuel cans (as a minimum) at the site on the southern shore

Concern was raised over flight-seeing traffic, as two planes were observed landing on the lake on a cloudy day. With the Tongass Land Management Plan specifying only three allowable landings in its Standards and Guidelines, is that standard being exceeded on high-volume flight-seeing days?

VCU status:

This large VCU is considered to be 75% complete with the alpine remaining to be inventoried. It also remains to be seen whether the South Fork of the Rudyerd can be continued through to Portland Canal. Physical impacts appear to be negligible above the landslide and moderate below within the realm of estuary influence. Social impacts are considered to be heavy along the western margin of the VCU due to the incredible quantity of flight-seeing planes. The river corridor channels sound upstream

and creates a surround sound effect for about three miles of the lower Rudyerd River reaches. We recommend that this portion of the VCU be revisited on a ten year cycle, with the inclusion of Walker River in the inventory.

The route from Walker Lake through to Barrier Creek would be an exciting way to inventory more of VCU 7940 in addition to accessing the alpine in the area. Due to the existing camp and the float plane use of Walker Lake, it is recommended that the Walker Lake area of the VCU be visited on a five year rotation.

RECREATION SITE DESCRIPTIONS

VCU 7980 RUDYERD RIVER

S0101 Beaver Flats

The muskeg belt sits approximately 200 feet off of Rudyerd River, just beyond a complex of beaver ponds. Coming upriver, the site sits on the right bank, slightly above where there is still current before it backs up above the slide. The area has potential for several sites, but the spongy muskeg is highly susceptible to human impacts; due to this, gravel bars would provide a hardier site when flooding poses no risk. Fresh water can be gotten from the river or from any number of small streams coming in from the hillside. Getting to the sites from the river poses a challenge without getting soaked, as the beaver have swamped large sections. A pair of Canada geese appear to be nesting in the vicinity of the sites. Excellent views.

S0102 Walker River

The site sits on the river left bank, directly across from the Walker River drainage. Several sites exist for tent pads, all heavily vegetated. Only a couple of pads have blueberry without the devil's club and salmonberry. Vegetation is fairly dense throughout the area, yet you can still catch glimpses across the river of the beautiful views and Walker River pouring down.

S0103 Walker R. Muskeg

From S0102, this muskeg system lies approximately 400 meters off of Rudyerd River (on a bearing of 144 from the mouth of Walker R.). There are a series of large muskegs that provide numerous possibilities for camping, and the views are stupendous. To the SSE one can see into the subalpine and the waterfalls that cascade down, to the north one can take in more granite faces and the Walker River drainage. Bear trail cuts through each of the muskegs. The muskeg meadows have freshwater in pools or coming off of the hill in a series of small streams that feed the pools.

S0104 S. Fork Muskeg

This site is a small muskeg 300 steep feet up off of the river and located approximately .4 to .5 miles above the confluence. The river can be heard shooting through the gorge down below and the view across into similar muskegs is quite nice. Freshwater can be obtained from either pools in the muskeg itself or from small streams feeding into the muskeg. The area provides space for a couple of tents sites, yet the smallness makes it compatible for one small party.

S0105 Lake 3500' Muskeg

The site sits on the river left side, directly across from the lake 3500' notch (upstream from the creek mouth). A couple of tent pads sit higher up in the area; a filled in beaver pond presents other options if not too wet. A Bear trail runs through the lowlands area, and in general it is a paradise after bush-whacking through the slide thickets.

S0106 Harlequin Pond

This site sits in the bottom of the drainage alongside a beaver pond. The area provides space for only one small tent, but the location is beautiful. The beaver pond has reflections of peak 5225', and the narrowing granite walls of the river valley spotted with waterfalls is gorgeous. One of the snowfields is visible from here, and forward progress through the willow and alder has rewarding vistas. Freshwater can be obtained either from the river or from small feeder streams.

S0107 Confluence

This area appears to be a sanctuary amidst the devil's club and salmonberry. A huge Sitka spruce shelters a large area devoid of any vegetation other than false lily of the valley and fern. The site is located approximately 40 meters off of the river bank, maybe 100 meters up the South Fork from the confluence. The river provides for freshwater and an opening from the dense growth.

S0202 Walker Pass

The small muskeg sits along the north side of the drainage on the Walker Lake side of the pass. At slightly over half a mile from the lake it sits in a pocket of Sitka spruce and Western hemlock providing space for one to two small tents. Bear and Wolf sign pass through the northern edge of the muskeg.

S0301 Walker Lake

Several site options exist along the lake shore, although high water would eliminate a few of these areas. This description covers the western shoreline, with sites sitting in muskeg-like areas with great views of the lake. Fresh water is available from the creek at approximately 400 feet distance, and of course the lake provides a source.

The muskeg area and beaver dam complex fill the bottomland about 1/3 to 1/2 mile up valley, possibly providing more options for campsites; the beaver, however, are still busy and changing the layout continually. The area is absolutely beautiful with waterfalls on either side of the valley.

S0302 Humpback Lake Camp

A canoe and rowboat are stashed on the south side of the lake, just west of the creek, as part of an existing camp. The site sits only 50' off of the lake, with a big stump, tent poles, and a short social trail. In addition to the boats, there are a kicker, fuel, oars, paddles, and one PFD cached at the site. The social trail crosses the creek and extends twenty feet to where the canoe and rowboat are stashed. A Bear trail, perhaps social as well, extends fifty feet to where the rusty shovel was found. Two small trees were found cut as well.

S0303 SE Walker Lake

This muskeg system is divided by a beaver complex located at the SE end of the lake, approximately 1/4 mile from the outlet river. Several sites exist in this area, all with nice views of the lake and the ridges surrounding the lake.

S0304 Walker Outlet

The muskeg system sits to the east of the outlet river, with sites for several large tents. Several small feeder streams cut through the muskeg, and Spotted sandpiper nests were found. Once again, the views of the lake and down the outlet river are stupendous.

S0305 N. Walker Lake

The site is situated on a small muskeg bench by the lake shore. Freshwater is located nearby, and the views of the lake are breath-taking. The particular site inventoried is representative of several sites in the area.

1998
INVENTORY
WALKER LAKE VCU 7980

Ranger District: Misty Fjords National Monument

Date: July 3, 1999

Wilderness Area: MFNM Wilderness

Evaluators: Heinen/Reese

Helicopter Landing Site: MF- 91 Walker Lake

Narrative Report: This helicopter landing site is located in a muskeg at the northeast end of Walker Lake, Lat. 55.44.690, Long. 130.34.176. The muskeg is bordered by a stream to the north, mountain hemlock/sitka spruce forest to the south and southeast, and Walker Lake to the west. There is sufficient room for a landing pad roughly one square mile in area. The site surveyed as a proposed helicopter landing pad could potentially serve as a starting point for routes into the Chickamin drainage. Walker Lake is nestled in a beautiful alpine setting with 4000' ridges rising up around the lake and a number of waterfalls -- one magnificent environment.

Description:

Vegetation type determined to be plant association #360: Sitka Spruce/Pacific Reedgrass. It is a typical muskeg area with pools and stunted trees scattered throughout.

Wildlife in the surrounding area is plentiful. A well used bear trail runs along the stream and beaver paths weave around the area in various places. Brown bear, beaver, Canada geese, wolves and Common mergansers are just a few of the animals observed in this VCU. The muskeg itself is habitat for a variety of birds, including nesting grounds for the spotted sandpiper. Beaver are active on the northern and western boundaries of the proposed site.

Recreation opportunities abound in the forms of hiking, fishing, camping, and boating. Many scenic camping areas can be found along the shore line with views of steep granite walls, waterfalls, and snow covered peaks. Walker Lake also appears to receive moderate use by float plane visitors.

Issues:

- Additional air traffic severely impacts the wilderness character. Walker Lake already receives flight-seeing traffic with landings occurring at the lake.
- Wildlife is abundant in this area, from migratory birds, raptors and amphibians to bear and wolves. Helicopter characteristics such as rotor downwash and intense noise could alter animal behavior.
- Muskeg ecosystems are highly sensitive to human impact with only a minimum of use. Sustained use of this environment could cause a lasting and permanent impact.

Recommendation:

This site does not have a naturally hardened surface and would show signs of stress and disturbance with minimum physical contact. Also, little is known about the impact of helicopters on surrounding wildlife. Dispersal and alteration of behavior are just two obvious results. The unforeseen consequences of landings could result in irrevocable and unreversible changes that damage the ecology and integrity of land and wildlife alike.

We would be complicating the management of Wilderness if we allow helicopters to land within Misty Fjords because it increases the hazards associated with heavy air traffic and forces the enactment of a heavy-handed regulatory approach to limit air traffic. The increased coordination between the Forest Service and the FAA would have to occur. Consider the liability of an incident relating to a flightseeing accident. Who would be responsible, i.e. liable? The air carrier? FAA? The managing agency? Or all of the above? These are questions better left unanswered, hence easy to avoid.

From a Wilderness Management perspective, where the objective is to maximize wildness and natural conditions, access by helicopters would jeopardize and threaten these values. Wildness, naturalness, unaltered, unrestricted, untrammelled, and free-spirited recreational opportunities would be greatly impacted. Existing non-motorized access difficulty level for an average wilderness user is MODERATE. It is recommended that this site be visited on at least a three year rotation due to its ease of access.

This is a desirable recreational site in an alpine setting. As a designated wilderness, should the site be made accessible by helicopter for the purpose of convenience or should it remain a challenge for those with the will, desire, and ability to access this area on the same terms as the wolf, bear, and deer? The intent of wilderness designation was to foster such manual skills and pristine values. Some of the greatest attributes of Alaskan Wilderness lie in their remoteness and level of difficulty. These values should be embraced and preserved – they are what define the quality of Alaskan Wilderness.

RUDYERD STREAM REPORT

Date: 6/6-13/99

Weather: Overcast with heavy rain to clear and dry

Crew: Heinen, Reese

Map Name: Rudyerd

Written by: Reese, Heinen

Report Date: 9-8-99

We begin the survey of Rudyerd River with high water levels and light to moderate rains and snowmelt feeding in. **Reach 1 is verified as an ES-2** with a channel incision of approximately 1.5m. and a bed width of 15m. Cobble is the predominant substrate throughout this section, with small deposits of silt/sand and gravel off in backwater fingers. We traverse this reach at high tide, hence a gradient of 0%. At Reach 2 the vegetation type begins to change as the stream falls out of the sphere of tidal influence and enters the narrow glaciated valley. Bed width is 10m. and the channel incision is 1m. with a gradient of 1%. Minnow traps were set in Reach 2 with four juveniles caught. Reaches 2, 3, and 4 are very similar in their channel attributes, and **we confirm Reach 2, 3, and 4 as FP-5.**

At the juncture of Reach 4 and Reach 5 a landslide has choked off the channel creating a boulder chute. We believe that this creates a barrier, as it has a height of 8m., a total length of approximately 18m., and a slope of 40%. The pool depth is indeterminable. This has resulted in Reach 5 forming a pond (?) as the backed up water flooded the entire valley bottom with dead snags throughout. The bed width varies around 40m. and the gradient is 0%. The channel is typically shallow with extensive silt deposits. Minnow traps were set 20 m. above the falls with no specimens captured. **We verify Reach 5 as a FP-5.** We begin to see current again in Reach 6, and the silt bars become sand and gravel bars toward the head of the reach. Bed width fluctuates between 25-35m. and the gradient is .5%. **The channel type continues as a FP-5 in Reach 6.** Reach 7 and 8 are much the same, although the bed width narrows to about 20m. and the channel incision increases slightly to .25m. **Reach 7 and Reach 8 are verified as a FP-5.**

The channel becomes contained in Reach 9, with a bedrock and boulder substrate. The gradient increases to 3.5% and the bed width is 20m. Channel incision is 2m. **We call Reach 9 a MC-2, a change from the GIS layer's LC-2. A barrier is located at the juncture of Reach 9 and Reach 10, with a height of at least 25m. and a slope of 45%.** The river enters a gorge as it goes around the bend, so only a portion of the barrier is visible. We do not survey Reaches 10 and 11 due to selecting a different route.

Reaches 12, 13, and 14 are all similar in their channel attributes. Bed width averages 20m. with a cobble to gravel substrate and sand and gravel bars deposited on the inside bends. Channel incision is 1m. and the stream has a gradient of 1%. **Reaches 12, 13, and 14 are verified as FP-5.** We do not survey reaches 15 through 19 due to route selection once again.

At Reach 20 we are working up the South Fork of Rudyerd River. Minnow traps were set with no juveniles caught. **Reaches 20 confirm as MM-2.** The channel here is moderately contained with a bedrock to boulder and large cobble substrate. Channel bed width remains fairly constant at 10m. with a 2% gradient and 1m. channel incision. Reaches 21 through 25 all share similar attributes. The bed width hovers around 6-7m., channel incision is 1m. and the gradient is 2.5-3%. The substrate still shows

some bedrock containment, but large cobble to gravel are now predominant. **The process group remains the same as the GIS layer, but we change the channel type to aMM-1 classification for Reaches 21, 22, 23, 24, and 25.**

At Reach 26 the GIS layer changes the classification to a FP-5 interestingly enough. Reaches 26, 27, and 28 have similar characteristics to the previous reaches. The gradient drops to 2%, but the channel bed width remains around 6m. with .5m. incision and large cobble to gravel substrate. The channel has little to no room for meandering over overflow due to sideslope containment. **Due to these attributes we call Reaches 26, 27, and 28 MM-1.**

From this point forward we only survey the channel to verify process groups rather than channel-typing. We confirm Reach 29 and 30 as MM. Reach 31, 32, 33, and 34 are classified as FP-4 in the GIS layer; however the narrow channel, cobble substrate and sideslope containment do not correspond to this channel type. We continue to call these reaches MM. Reach 35 is likewise a MM process group, and we terminate the survey at this point.

We ignore tributaries for the most part due to time limitations and our mode of travel. The following are the ones we take note of: At the juncture of Reach 16 and 17 we cross the tributary that flows north northwest into the mainstem channel. The stream shoots out of a narrow gorge (5m. wide) with an estimated 9% gradient. On the South Fork of the Rudyerd we believe that the side stream channels flowing northeast into the mainstem should have their lower reaches broken into an AF process group. This change affects the streams entering at the junctures of Reaches 20 and 21, 23 and 24, 27 and 28, 29 and 30, and 31 and 32.

Appendix E

DATA BASE EXAMPLES

Working data bases have been established and continue to be refined. These data bases help to supplement the narrative report information. Various types of information collected can be quarried showing different trends that might be developing over time.

Misty 99	Plant Species Running List		
CODE	GENUS	SPECIES	COMMON NAME
ACMI2	<i>Achillea</i>	<i>millifolium</i>	yarrow
	<i>Actaea</i>	<i>rubra</i>	baneberry
	<i>Adiantum</i>	<i>pedatum</i>	maidenhair fern
	<i>Agrostis</i>	<i>aequivallis</i>	Alaska bentgrass
	<i>Alectoria</i>	<i>sarmentosa</i>	witch's hair (lichen)
ALVIS2	<i>Alnus</i>	<i>viridis ssp. sinuata</i>	Sitka alder
ALRU2	<i>Alnus</i>	<i>rubra</i>	red alder
ANPO	<i>Andromeda</i>	<i>polifolia</i>	bog rosemary
ANGE2	<i>Angelica</i>	<i>genuflexa</i>	kneeling angelica
ANLU	<i>Angelica</i>	<i>lucida</i>	wild cellery
AQFO	<i>Aquilegia</i>	<i>formosa</i>	western columbine
AREGE	<i>Argentina</i>	<i>egedii ssp. egedii</i>	
ARAM	<i>Arnica</i>	<i>amplexicaulis</i>	clasping arnica
ARLA8	<i>Arnica</i>	<i>latifolia</i>	mountain arnica
ARDIV	<i>Aruncus</i>	<i>dioicus var. vulgaris</i>	goat's beard
ASMO3	<i>Aster</i>	<i>modestus</i>	modest aster
ASSU4	<i>Aster</i>	<i>subspicatus</i>	Douglas aster
ATFI	<i>Athyrium</i>	<i>felix-femina</i>	lady fern
BAOR	<i>Barbarea</i>	<i>orthoceras</i>	American winter cress
BLSP	<i>Blechnum</i>	<i>spicant</i>	deer fern
	<i>Boykinia</i>	<i>elata</i>	boykinia
	<i>Cakile</i>	<i>edentula</i>	searocket
CACA	<i>Calamagrostis</i>	<i>canadensis</i>	bluejoint
CAHEH	<i>Callitriche</i>	<i>heterophylla ssp. heterophylla</i>	diverse-leaved water starwort
CALEH2	<i>Caltha</i>	<i>leptosepala ssp. howellii</i>	marsh marigold
CARO2	<i>Campanula</i>	<i>rotundifolia</i>	common harebell
CAOL	<i>Cardamine</i>	<i>oligosperma</i>	few-seeded bitter cress
CALY3	<i>Carex</i>	<i>lyngbyei</i>	Lyngby's sedge
CAPL6	<i>Carex</i>	<i>pluriflora</i>	several-flowered sedge
CASI3	<i>Carex</i>	<i>sitchensis</i>	Sitka sedge
	<i>Cassiope</i>	<i>sp</i>	heather
CAUN4	<i>Castilleja</i>	<i>unalaschcensis</i>	Unalaska paintbrush
CAMI12	<i>Castilleja</i>	<i>miniata</i>	common red paintbrush
CHNO	<i>Chamaecyparis</i>	<i>nootkatensis</i>	Alaska yellow cedar
CIDO	<i>Cicuta</i>	<i>douglassii</i>	poison water hemlock
CIAL	<i>Circaea</i>	<i>alpina</i>	enchanter's nightshade
	<i>Cirsium</i>	<i>sp</i>	thistle

	<i>Cladina</i>	<i>portentosa</i>	reindeer lichen
	<i>Cladonia</i>	<i>macilenta</i>	lipstick cladonia (lichen)
	<i>Cladonia</i>	<i>chlorophaea</i>	false pixie cup (lichen)
	<i>Cladothamnus</i>	<i>pyroliflorus</i>	copperbush
CLSI2	<i>Claytonia</i>	<i>siberica</i>	Siberian miners lettuce
CLUN2	<i>Clintonia</i>	<i>uniflora</i>	blue bead
COOF	<i>Cochlearia</i>	<i>officinalis</i>	scurvy grass
COPA	<i>Conioselinum</i>	<i>pacificum</i>	Pacific hemlock-parsley
COAS	<i>Coptis</i>	<i>asplenifolia</i>	fern-leaf goldthread
	<i>Coptis</i>	<i>trifolia</i>	three-leaved goldthread
	<i>Corallorhiza</i>	<i>maculata maculata</i>	spotted coralroot
COSE16	<i>Cornus</i>	<i>sericea</i>	red-osier dogwood
COCA13	<i>Cornus</i>	<i>canadensis</i>	bunchberry dogwood
COME4	<i>Corallorhiza</i>	<i>maculata mertenisana</i>	western coralroot
CYFR2	<i>Cryopteris</i>	<i>fragilis</i>	
DECE	<i>Deschampsia</i>	<i>cespitosa</i>	tufted hairgrass
DOJE	<i>Dodecatheon</i>	<i>jeffreyi</i>	tall mountain shooting star
DOPU	<i>Dodecatheon</i>	<i>pulchellum</i>	few-flowered shooting star
	<i>Draba</i>	<i>hyperborea</i>	draba
DRRO	<i>Drosera</i>	<i>rotundifolia</i>	round-leaved sundew
DREX2	<i>Dryopteris</i>	<i>expansa</i>	shield fern
ELGL	<i>Elymus</i>	<i>glaucus</i>	blue wildrye
EMNI	<i>Empetrum</i>	<i>nigrum</i>	crowberry
EPAN2	<i>Epilobium</i>	<i>angustifolium</i>	fireweed
EPCI	<i>Epilobium</i>	<i>ciliatum</i>	purple-leaved willowherb
EPHO	<i>Epilobium</i>	<i>hornemannii</i>	Hornemann's willowherb
EPLA3	<i>Epilobium</i>	<i>lactiflorum</i>	broad-leaved willowherb
EQAR	<i>Equisetum</i>	<i>arvense</i>	common horsetail
EQFL	<i>Equisetum</i>	<i>fluviatile</i>	swamp horsetail
	<i>Equisetum</i>	<i>hyemale</i>	scouring rush
ERPEP2	<i>Erigeron</i>	<i>peregrinus ssp. peregrinus</i>	subalpine fleabane
ERAN6	<i>Eriophorum</i>	<i>angustifolium</i>	narrow-leaved cottongrass
FACR	<i>Fauria</i>	<i>crista-galli</i>	deer cabbage
FRCA5	<i>Fritillaria</i>	<i>camschatcensis</i>	chocolate lily
GAKA	<i>Galium</i>	<i>kamtschaticum</i>	northern wild licorice
GAAP2	<i>Galium</i>	<i>aparine</i>	cleavers
GATT3	<i>Galium</i>	<i>triflorum</i>	sweet-scented bedstraw
GASH	<i>Gaultheria</i>	<i>shallon</i>	salal

GEDO	<i>Gentiana</i>	<i>douglasiana</i>	swamp gentian
	<i>Geum</i>	<i>calthifolium</i>	caltha-leaved avens
GEMA4	<i>Geum</i>	<i>macrophyllum</i>	large-leaf geum
GYDR	<i>Gymnocarpum</i>	<i>dryopteris</i>	oak fern
	<i>Henkenya</i>	<i>peploides</i>	seabeach sandwort
HELA	<i>Heracleum</i>	<i>lanatum</i>	cow parsnip
HEGL5	<i>Heuchera</i>	<i>glabra</i>	alumroot
HIOD	<i>Hierochloa</i>	<i>odorata</i>	common sweetgrass
	<i>Hippuris</i>	<i>vulgaris</i>	common mare's tail
HOPE	<i>Honckenya</i>	<i>peploides</i>	beach greens
HOB2	<i>Hordeum</i>	<i>brachyantherum</i>	meadow barley
HUSE5	<i>Huperzia</i>	<i>selago</i> var. <i>selago</i>	fir clubmoss
	<i>Hylocomium</i>	<i>splendens</i>	stairstep moss
IRSE	<i>Iris</i>	<i>setosa</i>	flag iris/wild iris
JUAR2	<i>Juncus</i>	<i>arcticus</i>	Arctic rush
JUEF	<i>Juncus</i>	<i>effusus</i>	common rush
JUEN	<i>Juncus</i>	<i>ensifolius</i>	dagger-leaved rush
KAPO	<i>Kalmia</i>	<i>mycophylla occidentalis</i>	bog laurel
LAJA	<i>Lathyrus</i>	<i>japonicus</i>	beach pea
	<i>Ledum</i>	<i>groenlandicum</i>	Labrador tea
	<i>Leptarrhena</i>	<i>pyrolifolia</i>	leatherleaf saxifrage
LEMOM2	<i>Leymus</i>	<i>mollis</i> ssp. <i>mollis</i>	
LISC3	<i>Ligusticum</i>	<i>scothicum</i>	beach lovage
LIBO3	<i>Linnaea</i>	<i>borealis</i>	twinflower
LICO6	<i>Listera</i>	<i>cordata</i>	heart-leaved twayblade
	<i>Lobaria</i>	<i>oregana</i>	lettuce lung (lichen)
	<i>Lobaria</i>	<i>pulmonaria</i>	lungwort (lichen)
LUNO	<i>Lupinus</i>	<i>nootkatensis</i>	Nootka lupine
LUPA4	<i>Luzula</i>	<i>parviflora</i>	small-flowered woodrush
LYCL	<i>Lycopodium</i>	<i>clavatum</i>	running clubmoss
LYUN	<i>Lycopus</i>	<i>uniflorus</i>	horehound
LYAM3	<i>Lysichiton</i>	<i>americanus</i>	skunk cabbage
LYTH2	<i>Lysimachia</i>	<i>thyrsiflora</i>	tufted loosestrife
MADI	<i>Maianthemum</i>	<i>dilatatum</i>	false lily of the valley
MADI10	<i>Malus</i>	<i>diversifolia</i>	
	<i>Mentha</i>	<i>arvensis</i>	field mint
	<i>Menyanthes</i>	<i>trifoliata</i>	buckbean/bogbean
MEFE	<i>Menziesia</i>	<i>ferruginea</i>	false azalea/rusty menziesia

MIBO	<i>Microseris</i>	<i>borealis</i>	Apargidium
MIGU	<i>Mimulus</i>	<i>guttatus</i>	yellow monkeyflower
MOHY3	<i>Monotropa</i>	<i>hypopithys</i>	piresap
MOPA2	<i>Montia</i>	<i>parviflora</i>	littleleaf miner's lettuce
NUPO2	<i>Nuphar</i>	<i>lutea ssp. polysepala</i>	yellow pond lily
OESA	<i>Oenanthe</i>	<i>sarmentosa</i>	Pacific water parsley
OPHO	<i>Oplopanax</i>	<i>horridus</i>	devil's club
	<i>Orthilia</i>	<i>secunda</i>	one-sided wintergreen
OSPU	<i>Osmorhiza</i>	<i>purpurea</i>	sweet-cicely
	<i>Oxycoccus</i>	<i>oxycoccos</i>	bog cranberry
	<i>Peltigera</i>	<i>neopolydactyla</i>	frog pelt (lichen)
PEFR5	<i>Petasites</i>	<i>frigidus</i>	coltsfoot
PHCO24	<i>Phegopteris</i>	<i>connectilis</i>	narrow beech fern
PISI	<i>Picea</i>	<i>sitchensis</i>	Sitka spruce
	<i>Pilophorus</i>	<i>acicularis</i>	devil's matchstick (lichen)
	<i>Pinus</i>	<i>contorta contorta</i>	shore pine
	<i>Plagiothecium</i>	<i>undulatum</i>	wavy-leaved cottong moss
PLMA	<i>Plantago</i>	<i>macrocarpa</i>	Alaska plantain
PLMA3	<i>Plantago</i>	<i>maritima</i>	sea plantain
PLSt4	<i>Plantanthera</i>	<i>stricta</i>	slender bog orchid
PLDI3	<i>Plantanthera</i>	<i>dilitata</i>	white bog orchid
	<i>Poa</i>	<i>laxiflorum</i>	lax-flowered bluegrass
POAE	<i>Podagrostis</i>	<i>aequalis</i>	
POVO3	<i>Polygonium</i>	<i>viviparum</i>	alpine bistort
POGL8	<i>Polypodium</i>	<i>glycyrhiza</i>	licorice fern
	<i>Polystichum</i>	<i>munitum</i>	sword fern
	<i>Populus</i>	<i>balsamifera trichocarpa</i>	black cottonwood
POPA14	<i>Potentilla</i>	<i>palustris</i>	silverweed
	<i>Potentilla</i>	<i>villosa</i>	villous cinquefoil
	<i>Potentilla</i>	<i>palustris</i>	marsh cinquefoil
PRAL	<i>Prenanthes</i>	<i>alata</i>	rattlesnake root
PRVU	<i>Prunella</i>	<i>vulgaris</i>	heal-all/self-heal
PTAQ	<i>Pteridium</i>	<i>aquilinum</i>	bracken fern
	<i>Pyrola</i>	<i>asaifolia</i>	pink wintergreen
RAUN2	<i>Ranunculus</i>	<i>uncinatus</i>	little buttercup
RAOR3	<i>Ranunculus</i>	<i>orthorhynchus</i>	straight-beaked buttercup
	<i>Rhytidiadelphus</i>	<i>triquetrus</i>	electrified cat's tail moss
RILA	<i>Ribes</i>	<i>lacustre</i>	black gooseberry

RIBR	<i>Ribes</i>	<i>bracteosum</i>	stink currant
RUCH	<i>Rubus</i>	<i>chamaemorus</i>	cloudberry
RUPE	<i>Rubus</i>	<i>pedatus</i>	five-leaved bramble
RUSP	<i>Rubus</i>	<i>spectabilis</i>	salmonberry
RUPAP2	<i>Rubus</i>	<i>parviflorus var. parviflorus</i>	thimbleberry
RUCR	<i>Rumex</i>	<i>crispus</i>	curled dock
	<i>Rumex</i>	<i>occidentalis</i>	western dock
RUAQF	<i>Rumex</i>	<i>aquaticus var. fenestratus</i>	
SAMA6	<i>Sagina</i>	<i>maxima</i>	stickystem pearlwort
SASC	<i>Salix</i>	<i>scouleriana</i>	Scouler's willow
SASI2	<i>Salix</i>	<i>sitchensis</i>	Sitka willow
SARA	<i>Sambucus</i>	<i>racemosa</i>	red elderberry
SAME6	<i>Sanguisorba</i>	<i>menziesii</i>	Menzies' burnet
SACA14	<i>Sanguisorba</i>	<i>canadensis</i>	Sitka burnet
	<i>Sanguisorba</i>	<i>officinalis ssp. microcephala</i>	great burnet
SALY3	<i>Saxifraga</i>	<i>lyallii</i>	red-stemmed saxifrage
SAFE	<i>Saxifraga</i>	<i>ferruginea</i>	Alaska saxifrage
SAME7	<i>Saxifraga</i>	<i>mertensiana</i>	wood saxifrage
SCCE2	<i>Scirpus</i>	<i>cestiposus</i>	tufted clubrush
SCMI2	<i>Scirpus</i>	<i>microcarpus</i>	small-flowered bulrush
SETR	<i>Senecio</i>	<i>triangularis</i>	arrow-leaved groundsel
	<i>Smilacina</i>	<i>racemosa</i>	false Solomon's seal
SOSI2	<i>Sorbus</i>	<i>sitchensis</i>	Sitka mountain ash
	<i>Sphagnum</i>	<i>sp</i>	sphagnum moss
	<i>Spiraea</i>	<i>douglasii douglasii</i>	hardhack
STCA	<i>Stellaria</i>	<i>calycantha</i>	northern starwort
STHU	<i>Stellaria</i>	<i>humifusa</i>	salt marsh starwort
STST3	<i>Streptopus</i>	<i>streptopoides</i>	small twistedstalk
STAMP	<i>Streptopus</i>	<i>amplexifolius</i>	clasping twistedstalk
STRO	<i>Streptopus</i>	<i>roseus</i>	rosy twistedstalk
TEGR2	<i>Tellima</i>	<i>grandiflora</i>	fringe cup
THQU2	<i>Thelypteris</i>	<i>quelapaertensis</i>	mountain fern
	<i>Thelypteris</i>	<i>phegopteris</i>	beech fern
THPL	<i>Thuja</i>	<i>plicata</i>	western red cedar
TITR	<i>Tiarella</i>	<i>trifoliata</i>	foamflower
TREU	<i>Trientalis</i>	<i>europaea</i>	northern starflower
TRMA4	<i>Triglochin</i>	<i>maritimum</i>	sea arrow grass
TSHE	<i>Tsuga</i>	<i>heterophylla</i>	western hemlock

TSME	<i>Tsuga</i>	<i>mertensiana</i>	mountain hemlock
VAAL	<i>Vaccinium</i>	<i>alaskense</i>	Alaskan blueberry
VACE	<i>Vaccinium</i>	<i>cespitosum</i>	dwarf blueberry
VAOV	<i>Vaccinium</i>	<i>ovalifolium</i>	oval-leaved blueberry
VAOX	<i>Vaccinium</i>	<i>oxycoccos</i>	bog cranberry
VAPA	<i>Vaccinium</i>	<i>parvifolium</i>	red huckleberry
VAUL	<i>Vaccinium</i>	<i>uliginosum</i>	bog blueberry
	<i>Valeriana</i>	<i>sitchensis</i>	Sitka valerian
VEVI	<i>Veratrum</i>	<i>viride</i>	false hellebore
VEAM2	<i>Veronica</i>	<i>americana</i>	brooklime
VED	<i>Viburnum</i>	<i>edule</i>	highbush cranberry
VIGL	<i>Viola</i>	<i>glabella</i>	stream violet
VIPA4	<i>Viola</i>	<i>palustris</i>	marsh violet
	<i>Zostera</i>	<i>marina</i>	eel-grass

VCU Site Description Data

Date	Observer	VGL & Name	Trans #	GPS Lat	GPS Long	Site/Area & Name	Site Type	Activity Type	Exist of Potholes	Ball	% Site Disturb
60699	JH, JR	7980-Rudyerd	1	130.36.560	55.40.462	S0101-Beaver Pond	41.3	41.4	2	1	0
60799	JH, JR	7980-Rudyerd	1	130.34.097	55.41.485	S0102-Walker River	41.3	41.4	2	5	0
60899	JH, JR	7980-Rudyerd	1	130.34.528	55.41.288	S0103-Muskeg	41.3	41.4	2	6	0
60999	JH, JR	7980-Rudyerd	1	130.30.603	55.41.718	S0104-South Rudyerd	41.3	41.4	2	5	0
60999	JH, JR	7980-Rudyerd	1			S0105-South Rudyerd	41.3	41.4	2	5	0
61199	JH, JR	7980-Rudyerd	1	130.29.367	55.40.674	S0106-South Rudyerd	41.3	41.4	2	5	0
61199	JH, JR	7980-Rudyerd	1	130.31.002	55.41.963	S0107-Confluence	41.3	41.4	2	6	0
62699	JH, JR	7980-Rudyerd	2			S0202-Muskeg	41.3	41.4	2	5	0
62699	JH, JR	7980-Rudyerd	3	130.36.735	55.44.776	S0301-W Lake	41.3	41.4	2	2	0
62799	JH, JR	7980-Rudyerd	3			S0302 W Camp	41.3	41.4	1	2	20
62799	JH, JR	7980-Rudyerd	3	130.34.700	55.44.485	S0303-Lk Muskeg	41.3	41.4	2	2-5	0
62799	JH, JR	7980-Rudyerd	3	130.34.435	55.44.413	S0304-Outlet	41.3	41.4	2	2-5	0
62799	JH, JR	7980-Rudyerd	3	130.34.176	55.44.690	H0301-MF91	75	13.1	2	5	0
62799	JH, JR	7980-Rudyerd	3	130.35.761	55.43.346	S0305-N. Walker	41.3	41.4	2	5-2	0

VCU Site Description Data

File Filing	Tree Diam.	Sidral	Social Trails	Trash	Dist. to fresh water	Hand logging Y/N	CMT's Y/N	Plant Assoc. #	Area Condition	ROS Class	
N	0	1	1	1	6	N	N	350	1	1	
N	0	1	1	1	2	N	N	335	1	1	
N	0	1	1	1	6	N	N	999+	1	1	
N	0	1	1	1	6	N	N	390	1	1	
N	0	1	1	1	6	N	N	120	1	1	
N	0	1	1	1	6	N	N	130	1	1	
N	0	1	1	1	1	N	N	335	1	1	
N	0	1	1	1	2	N	N	130	1	1	
N	0	1	1	1	1	N	N	99	1	1	
N	3	1	5	2	1	N	N	335	3	1	
N	0	1	1	1	2	N	N	120	1	1	
N	0	1	1	1	1	N	N	115	1	1	
N	0	1	1	1	3	N	N	360	1	1	
N	0	1	1	1	3	N	N	391	1	1	

VCU Encounter Data

[illegible]

1/3 acre (40.5 foot radius), marked on a stand map or aerial photograph.

[illegible]

Appendix F

FIELD FORM EXAMPLES

Field data collection forms were updated and copied to rite-in-the-rain paper and reduced to a field size notebook. Improvements were made from the 1998 forms and continued refinement will be ongoing.

WILDERNESS RECREATION - SITE CONDITION INVENTORY & MONITORING WORKSHEET

START: Date/Time -

[illegible]

Photo Point Discription: Triangulate barings from two reliable static points ie. large rocks, boulders are best, use trees as a secondary option only, as they have a tendency to fall over time, making refining the point a difficult if not an impossible process. Measure distance of baring from point to point. (see example)

[illegible]

WILDERNESS - ENCOUNTERS: USE OBSERVATION WORKSHEET

[illegible]

Site Disturbance Data Sheet
for Recreation Sites and Trails
Misty Fjords National Monument and Ketchikan Ranger District

Area/VCU: _____ Sampled by: _____

Site #/Name: _____ Date: _____

Plot Description

GPS Reading: Lat: _____ Long: _____ Town, Rang, Sec, 1/4: _____

Reference Point: _____

Photo Point: _____

Distance from Reference Point to Starting Point: _____

Azimuth from Reference Point to Starting Point: _____

Plant Association: _____ %slope _____ Aspect _____

Trail/Rec Site Condition: _____ # Tent spaces _____

Campsite type: beach _____ vegetated beach _____ woodland _____ meadow/grassy field _____

Beach landing: poor _____ fair _____ good _____ Type: _____

Campsite suitability (LNT): yes _____ no _____ Comments: _____

Plot data

Plot #	1A	1B	1C	1D	1E	1F	1G
Azimuth fm starting							
Distance fm starting point							
% Trampling							
% Bare soil							
% Gravel							
% Rock							
% Litter							
% Vegetation							
% Water							

Species Composition

[illegible]

Date: _____

Crew Members

[illegible][illegible][illegible]

BALD EAGLE NEST MONITORING FORM

VCU: (4 Char.)

SURVEY TIME: _____ (nearest 1/10 hr)

DATE: _____ (YYMMDD)

OF NESTS MONITORED: _____

SURVEY #:

OF ACTIVE NESTS: _____

OBSERVERS: _____

PRECIPITATION: L R H S D

SURVEY TECHNIQUE: A F K S T
H P

WIND: C L M G

CLOUD COVER: C P O F

Nest Monitoring Data:

[illegible]

New Nest Data:

TAG #	NEST CONDITION	CONSTRUCTI ON	ADULT EAGLES	YOUNG & EGGS	NEST STATUS

[illegible]

Labels for freezer bags

Date _____

Collector and Agency _____

Trapline #? ____

Location (Lat/Long) _____ Other info, (if trapline datasheets are not available):
Habitat; Number of traps; Trap type; Weather; Elevation; etc.

Date _____

Collector and Agency _____

Trapline #? ____

Location (Lat/Long) _____ Other info, (if trapline datasheets are not available):
Habitat; Number of traps; Trap type; Weather; Elevation; etc.

Date _____

Collector and Agency _____

Trapline #? ____

Location (Lat/Long) _____ Other info, (if trapline datasheets are not available):
Habitat; Number of traps; Trap type; Weather; Elevation; etc.

Date _____

Collector and Agency _____

Trapline #? ____

Location (Lat/Long) _____ Other info, (if trapline datasheets are not available):
Habitat; Number of traps; Trap type; Weather; Elevation; etc.

Date _____

Collector and Agency _____

Trapline #? ____

Location (Lat/Long) _____ Other info, (if trapline datasheets are not available):
Habitat; Number of traps; Trap type; Weather; Elevation; etc.

Small Mammal Trapline Form

VCU _____

Date Traps Set _____

Time Traps Set _____

Date Traps Collected _____

Time Traps Collected _____

Trapline # _____

Number of traps in trapline: _____ Snap
_____ Sherman

Location (Lat/Long or Township/Range to nearest 1/4-1/4 Section) _____

Description of Habitat _____

Weather _____

Elevation _____ (approximate from quad map)

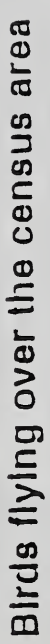
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____
Tag # _____	Species _____

Collector's Name _____

Collector's Name _____

7.0

Birds associated with the census area



	≤ 50 m	> 50 m
1	0.000	0.000
2	0.000	0.000
3	0.000	0.000
4	0.000	0.000
5	0.000	0.000
6	0.000	0.000
7	0.000	0.000
8	0.000	0.000
9	0.000	0.000
10	0.000	0.000
11	0.000	0.000
12	0.000	0.000
13	0.000	0.000
14	0.000	0.000
15	0.000	0.000
16	0.000	0.000
17	0.000	0.000
18	0.000	0.000
19	0.000	0.000
20	0.000	0.000
21	0.000	0.000
22	0.000	0.000
23	0.000	0.000
24	0.000	0.000
25	0.000	0.000
26	0.000	0.000
27	0.000	0.000
28	0.000	0.000
29	0.000	0.000
30	0.000	0.000
31	0.000	0.000
32	0.000	0.000
33	0.000	0.000
34	0.000	0.000
35	0.000	0.000
36	0.000	0.000
37	0.000	0.000
38	0.000	0.000
39	0.000	0.000
40	0.000	0.000
41	0.000	0.000
42	0.000	0.000
43	0.000	0.000
44	0.000	0.000
45	0.000	0.000
46	0.000	0.000
47	0.000	0.000
48	0.000	0.000
49	0.000	0.000
50	0.000	0.000
51	0.000	0.000
52	0.000	0.000
53	0.000	0.000
54	0.000	0.000
55	0.000	0.000
56	0.000	0.000
57	0.000	0.000
58	0.000	0.000
59	0.000	0.000
60	0.000	0.000
61	0.000	0.000
62	0.000	0.000
63	0.000	0.000
64	0.000	0.000
65	0.000	0.000
66	0.000	0.000
67	0.000	0.000
68	0.000	0.000
69	0.000	0.000
70	0.000	0.000
71	0.000	0.000
72	0.000	0.000
73	0.000	0.000
74	0.000	0.000
75	0.000	0.000
76	0.000	0.000
77	0.000	0.000
78	0.000	0.000
79	0.000	0.000
80	0.000	0.000
81	0.000	0.000
82	0.000	0.000
83	0.000	0.000
84	0.000	0.000
85	0.000	0.000
86	0.000	0.000
87	0.000	0.000
88	0.000	0.000
89	0.000	0.000
90	0.000	0.000
91	0.000	0.000
92	0.000	0.000
93	0.000	0.000
94	0.000	0.000
95	0.000	0.000
96	0.000	0.000
97	0.000	0.000
98	0.000	0.000
99	0.000	0.000
100	0.000	0.000

Notes:

MARbled MURRELET FOREST SURVEY FORM

Circle one: (Intensive Survey) General Survey Observer's name PETER PATON Site or transect: CLEAR CREEK Pg 1 of 1

Observers Initials P W P Month 0 Day 4 Year 92 SI/ PV 0 Survey site 0 Official Sunrise or Sunset 0629 Percent Cloud Cover 100 Time 0544 Distances and heights recorded in (please check one): ☒ Meters ☐ Feet Max. tree height within 100 m: 60

Sta. No.	Time		Num. Birds	Initial Del. Direct.		B e h	Voc.	T y p e	Blrd Height		Depart. Direction	Closest Dist. to Blrd		Notes
01	0610	0613	1	9	0	U	MK	H	—	—	45	25	5	flew NE up Clear Creek
	0619	0624	2	3	0	U	2K 1A	B	15	—	160	5	5	also wingbeats
	0624	0641	1	2	0	T	MK	H	—	—	90	—	—	
	0645	0655	3	3	0	F	W	B	40	—	180	1	0	
	0655	0705	1	7	0	F	3A	B	200	—	270	3	0	
	0705	0715	1	4	5	F	V	S	125	—	90	5	0	joined up with bird in previous detection.
	0715	0725	1	1	3	F	3K	B	125	—	90	2	5	

Prec. (precipitation): N = None, F = Fog, D = Drizzle, R = Rain
 Beh. (behavior): F = Fly over canopy, C = Circle, B = circle in or v canopy, T = fly Through or below canopy, L = Land in or .1 from tree, S = Stationary, U = Unknown.
 Voc. (vocalization): V = Visual/silent, 1-9 = number of calls, M = Multiple calls (> 9), K = Keer calls, A = Alternate calls, W = Wings, J = Jet Sound.
 se: H = Heard, S = Seen, B = Both seen and heard.

**Distances and heights recorded
in (please check one) :**

Meters	Feet

Begin	End
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12
12	13
13	14
14	15
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85	86
86	87
87	88
88	89
89	90
90	91
91	92
92	93
93	94
94	95
95	96
96	97
97	98
98	99
99	100

Prec. (precipitation): N = None, F = Fog, D = Drizzle, R = Rain
 Beh. (behavior): F = Fly over canopy, C = Circle, B = circle in or
 Below canopy, T = fly Through or below canopy, L = Land in or
 depart from tree, S = Stationary, U = Unknown.
 Voc. (vocalization): V = Visual/silent, 1 - 9 = number of calls, M = Multiple calls (> 9),
 K = Keer calls, A = Alternate calls, W = Wings, J = Jet Sound.
 Type: H = Heard, S = Seen, B = Both seen and heard.

water streams and rivers with submerged or partially emergent aquatic vegetation. Initial surveys will be located in the highest value habitat with the highest probability of finding frogs in the assessment area, whether or not in a harvest unit or road right-of-way.

Ketchikan Ranger District:

Surveys will be conducted for at least 5 days on each major project requiring an Environmental Impact Statement. Additional surveys are encouraged and left at the discretion of the District Ranger and the District Wildlife Biologist.

Projects requiring an Environmental Assessment do not require formal protocol surveys for spotted frogs, but surveys are encouraged if favorable habitat conditions occur within the project area.

Prince of Wales Island Districts:

Projects on Craig and Thorne Bay Ranger Districts do not require protocol surveys for any projects. However, surveys are encouraged if favorable habitat exists within the project area.

If spotted frogs are found during surveys, the biologist will immediately advise the USFWS and the Area TES Program Manager of the location. The District should also move immediately with further surveys so as to make use of the narrow timing window for spotted frogs. Whatever remains of the 2-3 week survey window will be used to inventory the best habitat that corresponds with potential units and roads. Collected data will be assessed following the field season. The information will be discussed with the R10 TES Program Manager and the USFWS to determine if additional surveys are needed the following spring.

Survey intensity may be decreased or increased in the future depending on information collected during the first couple of years of surveys. If spotted frogs are not found on parts of the Districts, and it is determined that they are not likely to be found there in the future, surveys will no longer be needed.

DATA FORM

The attached data sheet should be used to collect survey data. Location of surveys will be identified by legal description to the nearest 1/4 1/4 section.

Spotted Frog Survey Form

Observer: _____

Assessment Area: _____

Location within Assessment Area

General Description: _____

Township: _____

Range: _____

Section: _____

1/4 section: _____

1/4 1/4 section: _____

VCU: _____

Harvest Unit #: _____

Proposed Road #: _____

Trap Setting

No. traps used: _____

Date & Time Traps set: _____

Water Temp. at setting: _____

Trap Retrieval

Date & Time retrieved: _____

Water Temp. @ Retrieval: _____

Spotted frogs:

Trapped: _____

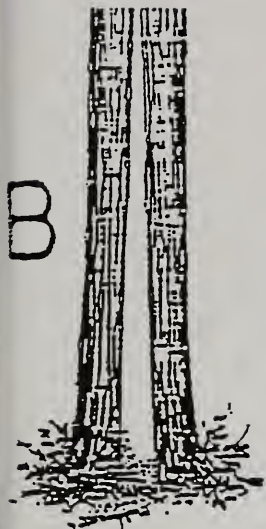
Seen: _____

Heard: _____

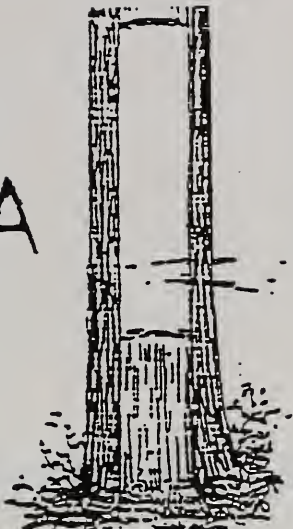
Other Species: Rasy? _____ Bubo? _____ Tagr? _____

Comments: _____

Fill out this form each time the trap is set and checked. Use a new form if the traps are left for additional time. Use a separate form for each site. A site may be a single water body or a series of water bodies.



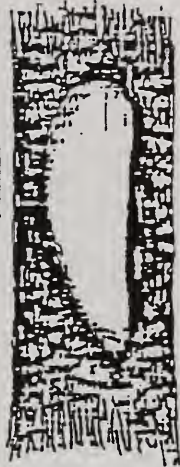
B



A



C



H



G

Triangular Bark Strip: Rectangular Bark Strip:

Blaze:

Oval Scar:

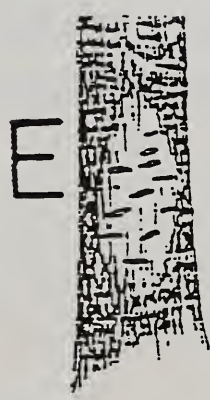
Plank Removal:



D

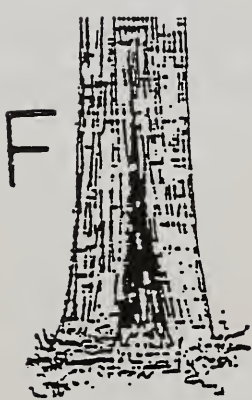


Alcove Tree:



E

Hacked:



F

Burned Tree:



I

Stump:

ILLUSTRATE TREES BELOW

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Appendix G

DATA DICTIONARY EXAMPLES

Data dictionaries were established in 1997 and continue to be refined, to code and help define the information being collected. It also aids in providing some basic information on how and why surveys should be conducted.

Definition

Existing Recreation sites - A site with definable boundaries, remnants of recent (within 50 yrs.) human use i.e. litter, fire ring, cut trees, etc... Could be as minimal as a small piece of trash or as extensive as a cabin. Could be a day use or overnight site, a post 50 yr. site would be considered an historical or archeological site, and possibly a recent recreation site.

Potential recreation sites - Are sites that have desirable qualities and are located on or just off traditional travel routes. Criteria for determining desirable qualities include but are not limited to: level areas, water proximity, areas of attraction i.e. lakes, ponds, streams, waterfalls, view points, site is visually noticeable from travel route/transect. All sites that we choose to use during the course of this work will be considered either existing or a potential recreation site. If it looks like a place you might potentially consider as a camp site, and is along one of our identified travel routes or transects, than it probably meets the criteria of a potential camp site or area.

If you are looking at an area where there might be multiple potential sites, which could often be the case, the entire area could be inventoried as a potential "Camp Area". For example a lake shore, bay, or cove could possibly support multiple sites, and it would be foolish for us to try an inventory every potential tent pad as an individual recreation site. In cases like this, we will inventory the area as a "Camp Area". If an existing definable site exist in an area, that site will be inventoried separately as an existing campsite. These sites/areas should be identified on a map in conjunction with data collection forms for future input into GIS.

Potential sites are the highest probability places where sites could begin to appear in the future if use were to increase significantly.

Area Condition is a general assessment of an area like a lake, cove, bay, drainage, inlet, ridge line, VCU, or wilderness. With the choices being - Pristine - Minimal Impact - Moderate Impacts - Heavy Impacts .

Pristine - No signs of human use.

Minimal Impacts - Some sign of use, a piece of litter, a couple hacked branches, etc...

Moderate Impacts - Sites are becoming a noticeable site(s) being used semi-frequently.

Heavy Impacts - Sites are easily noticeable, extensive veg. loss and compaction, probably has a fire ring.

Consider these choices relative to a pristine environment...

Rational for survey intensity for individual VCUs. Intensity of survey is based on several factors that include: size, recreation potential, cultural remnants, fish and wildlife habitat. The objective of this system is to get a feel for the amount or recreational use occurring and its future potential, wildlife activity, fish and stream status, cultural remnants, vegetative classes, etc... Basically we are seeking an inventory of conditions as seen from the ground. As determined by these factors, each VCU is given a time allotment in order to explore as much of the VCU as possible. Transects are established along traditional travel routes ranking in priority from highest to lowest, saltwater being highest as it is the most accessible, then drainages leading to lakes large enough to support air traffic, then alpine systems

with reasonable access from salt water or lake systems, and finally major drainages that could support recreation activity or boat traffic from kayaks/canoes to jet boats. The average length of tour is based around a ten day schedule, though that can vary based on the VCUs size and potential for recreation activity.

During the course of a ten day tour judgement calls are made to determine the effectiveness and functionality of continuing the survey. For example: if we have followed a drainage up into a lake system and we are proceeding through that system and not finding signs of any or very little recreational activity, at this point a judgement call is made based on those observations. And the amount of ground covered in the allotted time period is the extent of that survey. This information is then documented into hard copy file folders, working and GIS databases. So as the next rotation of survey can decide to re-look at ground previously covered or ground that was not covered due to a judgement call, but had some potential to support recreation activity. Additionally, if the opposite is determined and recreational use is occurring at an unsuspected level, additional survey time may be added to satisfactory cover the VCU. In any event it is an arbitrary system for surveying ground.

It is felt that ground surveying is necessary in determining conditions to a reasonable level, combined with aerial surveys. In this way we cannot only document what is happening presently, but we can determine what some of the future recreational potential might be. For example: how difficult it is to access some of these areas by foot or boat for those interested in this level of wilderness experience. It is important to remember that the Wilderness Recreation Opportunity Spectrum (WROS) is a spectrum that is meant to cover the entire Wilderness Preservation System. Alaskan wilderness probably represents the primitive end of that spectrum as a whole.

Activity Types

<u>Code</u>	<u>Activity</u>	<u>Definition</u>
1.1	Viewing Scenery	- viewing outstanding scenes, landscapes or other natural features from observation points, where visitors generally stop for a period of time.
1.5	Viewing Wildlife	- viewing wildlife ie. bear, goat, whale, seal, sea lion, etc... PC
12.1	Tour Boat or Ferry Use	- travel on commercial water craft operating as tour boats or providing service primarily for visitors to view scenery on, or gain access to, National Forest.
12.2	Power Boat Use	- Driving or riding in small pleasure craft, houseboats, airboats, and similar craft for pleasure.
12.3	Viewing from Marine Access	- viewing from salt water, ie. boats or beaches. PC
13.1	Helicopter	- flying or riding in powered wing or rotor aircraft to gain access to National Forest lands or waters for recreation purposes.
13.4	Flightseeing	- flying or riding in a wing or rotor aircraft for the purpose of viewing scenery. PC
14.1	Hiking	- foot travel (including jogging) for pleasure or access.
15.1	Canoe/Kayak	- riding in canoes, kayaks, and other light weight craft propelled with paddles or oars.
31.1	Stream Fishing	- fishing in moving water. PC
31.3	Saltwater Fishing	- fishing in oceans, fiords, bays, coves, estuaries.
31.4	Ice Fishing	- fishing through ice on frozen bodies of water.
31.5	Lake Fishing	- fishing in large fresh water bodies of water. PC

Activity Types

<u>Code</u>	<u>Activity</u>	<u>Definition</u>
33.6	Beach Combing	- patrolong shorelines by foot or boat looking for valued items ie. glass floats, drift wood, etc... PC
41.4	Dispersed Camping	- night use of persons camping in tents, lean-to's, shelters, or other accomidations that are not part of a vehicle.
43.0	Picknicking	- eating meals in a forest environment for pleasure and relaxation. (incidental meals eaten while participating in other major activities such as hunting, fishing, hiking etc..., should be reported as part of those activities).
46.2	Resort Use	- overnight use of hotels, lodges, motels, hostels, cabins, etc...ie. Humpback Lake Resort
46.3	Recreation Cabin Use	- includes day and night use of permitted recreation residences or Forest Service owned cabins.
51.5	X-Country Skiing	- skiing on dispersed areas using Nordic (cross country) skiing equipment or snowshoes.
61.1	Big Game Hunting	- hunting for and harvesting big game such as deer, goat, bear etc...
61.3	Upland Bird Hunting	- hunting for and harvesting upland birds, grouse, ptamarigan.
61.4	Waterfowl Hunting	- hunting for and harvesting waterfowl ie. ducks, geese, etc...
62.2	Nature Study	- includes rockhounding, caving, photography and collection of plants, insects, driftwood or fossils. Also includes, study natural history, archeology and avocational study of the earth, its geology, history, peoples, and flora and fauna.
63.1	Mountain/Ice Climbing	- climbed in areas recognized by skilled climbers as offering special opportunities for this activity. (if climbing skills and equipment is not required, report as hiking)
64.1	Gathering Forest products	- noncommercial and permitted harvesting of products as a recreation activity. includes picking fruits, nuts, and berries, collecting cedar bark, etc...
81.3	Touring, Guided	- touring other than by foot, where interpretation is provided by a guide other than a commercial outfitter or packer.

Site Types

Code	Site	Definition
12.0	Roads	- aggregate of all recreationally important roads on National Forest System lands including roads managed by Federal, State, County Agencies. (Quartz Hill)
13.0	Trails	- aggregate of all trails on the inventory unit except interior and interpretive trails on developed sites.
31.6	Anchorage	- suitable and safe anchorage suitable for enjoyment of recreation activities. PC
31.7	Buoys	- installation for providing safe morage for the purpose of recreation activities. PC
32.1	Hot Springs	- known or unknown sources of naturally heated water springs. PC
33.1	Ocean or Other Salt Water	- waters suitable for enjoyment of recreation activities.
33.3	Lakes or Ponds	- natural bodies of water suitable for enjoyment of water-related recreation activities, including fishing, and swimming.
33.5	Rivers and Streams	- flowing waters suitable for recreation purposes.
34.0	Fishing Site	- a site located on a body of water: lake, pond, stream, river, bay, cove, etc... where fishing is a popular recreational activity. PC
35.0	Trailhead	- site developed primarily to accomidate transfer from roads to system trail use. Improvements may include toilets and diamond markers.
41.3	Dispersed Campsite	- night use of persons camping in tents, lean-to's, shelters, or other accomidations that are not part of a vehicle.
44.2	Hotels, Lodges, Resort-Privately Owned	- site with structures designed primarily to accomidate overnight use. Includes cabins, hostels and similar shelters for visitors. (Humpback Lake Resort)
44.3	Recreation Cabin	- site developed requiring reservations and logistical planning for the purpose of recreational activity. PC

Site Types

Code	Site	Definition
44.4	Recreation Shelter	site developed for use on a first-come, first-serve basis for the purpose of recreational activity. PC
45.2	Organization Site/Private	owned - a self contained camp designed primarily for organized group recreation use. (Mirror Lake)
61.0	General Undeveloped Areas	- all lands suitable and available for recreation, but not otherwise codified or described and inventoried as developed sites or other dispersed recreation areas.
61.1	Caves	- Known or unknown underground chamber open to the surface. PC
70.0	Documentary Site	- sites, buildings, districts, or other features to be managed and preserved for their cultural, historic, or natural values. Identify only sites that have , or are eligible for, State and/or National Register Status.

Definitions

Site Name: The trail cabin or campsite name or number, if known. Some other description if unknown.

Photo Point: Describe the exact position the phot was taken. For example, 3 feet from the fire-ring on a 260 degree azimuth.

Reference Points: Some permanent feature in the landscape where the first measurement is taken to the starting point.

Starting Point: The laymen term for epicenter.

Trail Starting Point: The mid point of the trail where the belt transect is established along a specific azimuth reading.

Recreation Site Starting Point : The mid point of the rec site where the first measurements and azimuths will be taken for establishing plots along the belt transects.

Distance to Starting Point: A measurement taken from the reference point to the starting point.

Plant Association: The climax forest community represented by describing overstory tree, understory shrub and understory forb, graminoid and fern indicator plants.

Plant Community: A vegetation type that is not at its climax stage of development, but at some earlier serel stage. These include the following:

1. Forest: a) second growth
2. Scrub: a) dwarf tree scrub
b) Tall shrubs (> 5 feet)
c) Low shrubs (5 feet to 8 inches)
d) dwarf scrub (less than 8 inches)
3. Herbaceous: a) Graminoid
b) Forb/Fern
c) Moss
d) Lichen
e) Aquatic-freshwater
f) Aquatic-salt water
g) Aquatic-brackish water

Azimuth from Starting Point: Compass bearing taken from the starting point to establish the plots along the belt transect.

Distance from Starting point to plot center: Measure the distance from the starting point to the first plot center.

Plot center: The center of each plot where distances are measured to the starting point and to other plot centers along the same belt transect.

Impact Zones:

Distance from Starting point to plot center: Measure the distance from the starting point to the first plot center.

Plot center: The center of each plot where distances are measured to the starting point and to other plot centers along the same belt transect.

Impact Zones:

Natural = no evidence of disturbance

Moderate = 1-50% trampling

Heavy = > 50% trampling

Severe = totally denuded soil/fire ring

Percent Trampling: Determine the percentage of the plot where evidence of trampling has occurred.

Use the following categories:

0 = no evidence of trampling (no impacts)

1 = 1-25% of the plot trampled (low impacts)

2 = 26-50% of the plot trampled (moderate impacts)

3 = >50% of the plot trampled (heavy impacts)

To determine if trampling is present, use the following characteristics:

- 1) exposed mineral or organic soil
- 2) matted moss or matted vegetation
- 3) dead vegetation
- 4) broken branches and twigs
- 5) footprints
- 6) other disturbances

Percent Cover: Determine the approximate percent cover for each of the following categories within each plot.

- 1) S = bare soil (particles < 1/16 in diameter (mineral and organic)
- 2) G = gravel (particles > 1/16 to 3 inches in diameter)
- 3) R = Rock (particles > 3 inches in diameter)
- 4) L = litter and duff. Litter includes freshly fallen leaves, needles, twigs, bark fruits; duff is the fermentation layer and humus layer.
- 5) V = Vegetation. Vegetation includes, shrubs, forbs, ferns, grasses, sedges, rushes, mosses, lichens, liverworts. (see species check list).
- 6) W = Water

Data Example

- 1) Date = 031797
- 2) Observer = PC/LB
- 3) VCU # & Name= 820 & Walker
- 4) Transect # = 01
- 5) GPS Long. = 68 dg. 55 min. 28 sec.
- 6) GPS Lat. = 131 dg. 23 min. 42 sec.
- 7) Site/Area # = 55139
- 8) Site Type = 41.3 --- see list of choices
- 9) Activity = 15.1 etc... --- see list of choices
- 10) Setting = 1 - Marine --- see list of choices
- 11) Percent Site Disturbance = 0 --- see list of choices
- 12) Fire Ring = Y --- Yes or No
- 13) Tree Damage = 6 --- # of trees damaged or cut on site
- 14) Structures = 1 --- see list of choices
- 15) Social Trails = 2 --- see list of choices
- 16) Trash = see list of choices
- 17) Distance to Fresh Water = 3 --- see list of choices
- 18) Hand Logging in vicinity = Y/N
- 19) Culturally Modified Trees = Y/N
- 20) Plant Association #
- 21) Area Condition = see list of choices
- 22) ROS Classification = see list of choices
- 23) Time in VCU = Start/Stop

ENCOUNTERS DATA DICTIONARY AND REFERENCE PAGE

Code	Item	Definition
mmddyy	Date - month, day, year	
####	VCU - Number	
L/R/H/S/D	Precipitation - L=light rain/drizzle, R=steady rain, H=hail, S=snow, D=dry	
C/P/O/F	Cloud Cover - C=clear, P=partly cloudy, O=overcast, F=fog	
###	Planes Observed - total planes encountered per day.	
##	Plane Landings - total plane landings observed per day.	
##	Fresh Water Landings - total number of fresh water landings per day.	
Place Name of Rudyerd, etc...	Landing Locations - common name location ie. Nooy Lk., Punchbowl Cove, Head	
## water.	Marine encounters (motor) - total number of motorized vessel encounters on salt	
## on water.	Marine encounters (non-motorized) - total number of non-motorized encounters	
##	Human Encounters - Humans physically encountered on trails, lakes, routes etc...	
Place Name etc...	Encounter Locations - common name location, ie. Winstanley Trail, Checats Lake,	
Comm. Flts.	Total number ####	
Tour Ships than 500	Total # and ship class: 1-Large 1500+ *** 2-Medium 500 - 1500 *** 3-Small Less	

TRAIL CONDITION DATA DICTIONARY AND REFERENCE PAGE

<u>Code</u>	<u>Item</u>	<u>Definition</u>
mmddyy	Date - month/day/year	
####	Trail Number - system trail number, ie # 704	
#	Social Trail Location - 1=1st 1/4 mi, 2=2nd 1/4 mi, 3=3rd 1/4 mi, 4=4th 1/4 mi, 5=5th 1/4 mi, 6=6th 1/4 mi, 7=7th 1/4 mi, 8=8th 1/4 mi, 9=9th 1/4 mi, 10=10th 1/4 mi, etc...measured in quarter mile increments.	
#	Total number of Social Trails - total number of social trails branching off a single system trail.	
Name path.	Attraction/Feature - the point of interest that has led to the development of the user path.	
#	Social Trail Length - the length of a user path off a system trail.	
#	Trash - amount of trash collected in association with the trail.	
#	Trail Condition - Overall useability of trail to the average visitor.	

Key to Tier I Form

Reach a length of stream with the same attributes (same channel type and stream class); the arc between nodes (nodes are the red dots on the fasmag). You will split reaches when you find a different channel type in the field compared to what is currently mapped. The different channel type must be at least 100 meters long before you would break it out and call it a new reach. You will also split reaches the first time you find a barrier to upstream migration that currently is not mapped.

Landform The first thing you look at, your position in the landscape. Example: valley bottom, foot- slope, sidehill, ridgetop.

PG same? Process Group (PG) is the next thing you look at after the landscape. Process group refers to a generalized set of characteristics for a stream type. There are several kinds of process groups: floodplain, Estuary, Low Gradient Contained, Mixed Moderate, Mixed Control, Alluvial Fan, Glacial outwash, and High Gradient Contained. "PG same?" means is the process group you are looking at as the water purls around your boots the same the one represented by the two letters (AND NOT THE NUMBER) that are written atop that blue, red or green line on that plastic map in your hand. If you find yourself in a tie between process groups, make the call for the least fish-friendly. Most fish Friendly is Low gradient, least fish Friendly is High gradient. Within Low, FP is most fav, then LC. Within moderate Gradient, MM is most fav, then MC. The rest is inhospitable to fish, as "they" say.

Gradient The next thing you look at after Process Group. MUI IMPORTANTE'!!! You measure it over as many pool/riffle sequences as you can clearly see, within the same reach of course. There are three major groups: 1. Low Gradient, 0-2%, depositional- See the ES, FP LC and GO channel type cards; 2. Moderate gradient, 2-6%, transitional- see the MC and MM cards- You may also want to look at the AF cards; 3. High Gradient, >6%, transport- See the HC and AF cards **Contained** The next thing you look at after Gradient. MUI IMPORTANTE'!!! Contained refers to the streambanks on either side of the stream. If the stream bank is practically non-existent on both sides of the channel- the channel would not be contained. If there are cliffs on both sides of the stream and there is no evidence, no way in fact, that the stream is ever going to leave that channel at high water, then the stream is contained. Inbetween these two is partial containment, the MM and MC channel types. If there is bedrock here and there but not a continuous wall of it, then the channel is a partially contained MC process group. This MC stuff is tough and just takes practice. **IF you had a question about Process Group, you should be able to define it after you have figured out the Landform, Gradient, and Containment.**

Bedwidth When a channel is contained, the bedwidth is the straightest distance across the stream between clean banks. By clean, I mean the highest point on the bank where you can clearly see the stream keeps vegetation from growing. In uncontained channel types, bedwidth is the width across the stream identified by clean substrate (read "substrate" as rock - from pea gravel to boulders).

Sideslope/length-percent This measurement is especially useful when identifying a channel type within a process group- particularly the HC's. Sideslope is the distance from the stream margin to the first identifiable slopebreak above the stream. Measure the % of the slopes. Make sure you pick a typical section of slope for both banks. **Incision** is not on your form, but you need to know what it is. When you are in the stream bottom, look up at the slopebreaks on either side of you and draw an imaginary line between them. Estimate the shortest vertical distance from that line to the stream bottom you are standing on (oh, that rascally perpendicular bisector from geometry again!). That estimated distance is your stream incision.

Verified Location This is straight forward. You need to know where you are at, you know what I mean? If you dont know, say you dont know. The best way to know where you are at is either thru GPS or an identifiable landmark on the airphoto. Airphoto is faster if you are good at reading them- it is a totally acceptable alternative to GPS.

CT Same? After you have identified the process group, sideslope length/% (+ made a mental note of incision), and bedwidth, Channel typing is a snap. Just for the heck of it, lets look at FP's. There are FP3, FP4, and FP5 channel types. All of them are uncontained. The difference between the three is the width: <10m, <20m, or >20m, respectively. On the cards, substrate and CT descriptions will also help you decide. If you dont know, write DONT KNOW. Im not kidding. Write DONT KNOW. Seriously.

Photo Roll/Photo number For every reach you confirm or split out, I want at least one picture, and two if you have the film. Take an upstream picture and a downstream picture. Record the roll and photo number(s) in the space provided in the card. Its that simple. Choosing a representative photo point is the hard part, right, Shannon?

Fish Its a Yes, No, or ? thing. If all you do is look and you don't see any, a question mark will do. If you trap and dont get any, put no and comment at the bottom of the card. If you see them and dont trap, put a Yes. If you trap and are comfortable and certain of the juveniles you are looking at, put yes in the box and write the species and where you trapped them in the comments (read "where" as Reach).

Barrier You will know most barriers when you see them. Take a picture of them with a person in there for scale if possible. Fill out the barrier card.

Stream Class This one is clear as mud. Salmon or adfluvial trout present = Class I, resident stream trout = class II, no fish but stream is incised into the hill 15' and the channel is > than 5 feet wide = Class III, 1' > 5' = class IV. I is blue; II is red, III is green and IV is not represented on your map.

PLANT INVENTORY AND CHECK LIST

A preliminary plant checklist was started for the Misty Fiords National Monument in 1999. This list includes vascular plants and lichens. Fungi, moss and liverwort species were not documented. Voucher specimens of vascular plants were not collected unless identification was uncertain in the field.

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Karen Dillman, Botanist

Slope-	Enter the slope from plot center (average up and down hill)	
Aspect	Enter the predominant plot aspect	
1 North	2 Northeast	3 East
5 South	6 Southwest	7 West
	8 Northwest	9 Level or rolling
Plant Association	Enter the code which best describes the plant association within and around the plot (see key Y, Use 800 for Pacific Silver Fir occurrences)	
Stand Structure	Enter the code which best describes the stand structure within and around the plot	
1Even-aged-single storied	- A single even canopy characterizes the stand. The greatest number of trees are in a height class represented by the average height of the stand; there are substantially fewer trees in height classes above and below this mean	
2Even-aged-two storied	- Two relatively even canopy levels can be recognized in the stand. The frequency distribution of trees by height class tends to be bimodal. Neither canopy level is necessarily continuous or closed, but both canopy levels tend to be uniformly distributed across the stand.	
3Uneven-aged	- At least three size classes are commonly represented in the stand. Generally, the canopy is broken and uneven although multiple canopy levels may be distinguishable. The various size classes tend to be uniformly distributed throughout the stand.	
4Mosaic	- At least two distinct size classes are represented and these are not uniformly distributed, but are grouped in small repeating aggregations, or occur as stringers less than two chains wide, throughout the stand. Each size class aggregation is too small to be recognized and mapped as an individual stand. The aggregations may or may not be even-aged.	
5Two-aged	- Two distinct age classes are represented. The stand may be two-aged or trend towards uneven-aged as a consequence of both an extended rotation period of regeneration establishment and/or the retention of reserve trees that may represent one or more age classes.	
Number of snags	Enter the number of snags (GT 10' tall) by condition class:	
0	No snags per acre and no condition class	
10	10-31.9 inch DBH Class Condition Unknown	
11	10.0-31.9 inch DBH; live tree	
12	10.0-31.9 inch DBH, dead tree	
40	32 inch or greater DBH Class Condition Unknown	
41	Greater than 32" DBH, live tree	
43	Greater than 32" DBH, tree dead	
TM Damage Agent	Enter the code which best describes the condition of trees within the plot: (use more than one if necessary)	
10	No damage	
12	Moderate insect damage	
22	Moderate physical defect	
32	Moderate dwarf mistletoe	
42	Moderate cedar decline	
52	Moderate hemlock fluting	
62	Moderate stem decay	
72	Moderate animal damage	
82	Moderate windthrow	
92	Moderate Other Damage	
Notes	Record any interesting observations (minor species, exotic plants, etc.)	

The above cover estimates should use the following cover classes and codes:

Code	<u>Class</u>
0	0%
T	0 - 0.1%
1	0.1-1%
3	1-4.9%
10	5-10%
20	11-25%
30	26-35%
40	35-45%
50	46-55%
60	56-65%
70	66-75%
80	76-85%
90	86-95%
98	96-100%

DATA DICTIONARY FOR BALD EAGLE SURVEYS AND MONITORING

This document describes data from the KAD Bald Eagle Nest Surveys that will be entered into the District database. This database is meant for any bald eagle Nest surveys, including monitoring nests for nesting activity. This database is not meant for incidental observations.

Header Information:

VCU	4 digit #, (example: 7440)
DATE	6 digit # for YYYYMMDD
SURVEY #	Survey number for that VCU for that day.
OBSERVERS	3 initials of up to two most experienced observers
SURVEY TECHNIQUE	A = auto, F = foot, K = kayak, N = not recorded, S = skiff, T = Tongass Ranger, H = helicopter, P = Plane
SURVEY TIME	Total hours in VCU for that survey, to nearest 1/10 hr.
# OF NESTS MONITORED	Total number of nests monitored, include nests you couldn't find.
# OF ACTIVE NESTS	# of nests determined to be active
PRECIPITATION	L=light rain, R=rain, H=hail, S=snow, D=dry, N=not recorded
WIND	C=calm, L=light breeze, M=moderate wind, H = high wind, N=not recorded
CLOUD COVER	C=clear, P=partly cloudy, O=overcast, F=fog, N=not recorded

Nest Monitoring Data:

QUAD	Quad #, Example: KTNB4 (don't use quarter quads)
NEST #	USFWS Nest number for that Quad. The numbers shown on the Bald Eagle Nest Atlas.
BEGIN TIME	Time you begin monitoring this nest. Military Time: 0300
NEST CONDITION	N=Not recorded, C=not found, G=good, P=poor.
CONSTRUCTION	N=not recorded, 0=old material (no new material), 1=new material in nest, U=Unknown
ADULT EAGLE	N=not recorded, 0 = none, 1=adult near nest, 2=adult in nest, 3=pair near nest, 4=pair in nest
YOUNG AND EGGS	N=not recorded, 0=none, 1=young in nest, 2=eggs in nest, U=Unknown
NEST STATUS	N=not recorded, A=active, B=not active, U=Unknown, C=Can't find nest
END TIME	Time you stop monitoring the nest. Military time: 0300

New Nest Data:

TAG #	Number off the USFWS tag attached to the tree. Example: C309
NEST CONDITION	N=Not recorded, G=good, P=poor
CONSTRUCTION	N=not recorded, 0=old material (no new material), 1=new material in nest, U=Unknown
ADULT EAGLE	N=not recorded, 0 = none, 1=adult near nest, 2=adult in nest, 3=pair near nest, 4=pair in nest
YOUNG AND EGGS	N=not recorded, 0=none, 1=young in nest, 2=eggs in nest, U=Unknown
NEST STATUS	N=not recorded, A=active, B=not active, U=Unknown

5 = newly located positive NOGO nest

WEATHER CONDITIONS DURING SURVEY

PRECIPITATION

L= Light rain/ Drizzle

R= Rain

H= Hail

S= Snow

D= Dry

N= Not recorded

WIND

C= Calm

L= Light Breeze

M= Moderate Wind

H= High Wind

N= Not recorded

CLOUD COVER

C= Clear

P= Partly Cloudy

O= Overcast

F= Fog

N= Not recorded

DATA DICTIONARY FOR GOSHAWK INVENTORY

This document describes data from Ketchikan Area goshawk (NOGO) surveys that will be entered into the Area database. This database is meant for any NOGO surveys (even when secondary to other activities). This database is not meant for incidental observations of goshawks. When a visit is made at or near a nest after it is known to be occupied, that visit is considered nest monitoring and not surveying.

VCU	4 digit # for value comparison unit (<i>e.g.</i> VCU716=7160)
DATE	6 digit # for YYMMDD
SURVEY NUM	Sequential number of surveys in VCU for that day (<i>Considered same survey if: 1) one crewperson sits and overlooks same general area simultaneously as a second crewperson walks through and conducts a transect, or 2) points of two separate transects are within a half mile of each other or cover a contiguous area, either from different crews or same crew on same day (transect time is summed from two transects). Considered different survey for any other combination</i>)
OBSERVERS	3 initials for up to two most experienced observers (<i>If survey is from two crews, use most experienced from each crew</i>)
SURVEY TECHNIQUE	A = auto F = foot K = kayak N = not recorded P = plant S = skiff T = Tongass Ranger
CALL TYPE	A = alarm W = wail B = both O = observation only, no calls N = not recorded U = unknown
# OF CALL STATIONS	Total number of call stations on the transect
TRANSECT TIME	Total hours of survey time spent on the transect (<i>To nearest 1/10 of hour. Includes all time spent surveying, not just when broadcasting. For example, include time spent walking into a stand, if you are actually watching for goshawks.</i>)
# OF OBSERVATIONS	Total number of observation stations (<i>If an observation station during transect route is less than two hours long, do not count it as an observation station, but do count towards transect time.</i>)

OBSERVATION TIME

Total hours of survey time spent at the observation station if greater than two hours, or if not associated with a transect (To nearest 1/10 of hour. Includes all time spent surveying, not just when observing. For example, include time spent walking to an observation station, if you are actually watching for goshawks.)

REASON

Select first appropriate choice from the list that describes why a particular survey was completed

K= At or near a known nest stand
T= At or near a probable territory
O= At or near a past known/possible observation
H= Potential habitat, 1st purpose NOGO survey
C= Convenience, while emphasizing other work
R= Random habitat selection
N= Not recorded

NOGO OBSERVED

Pick highest choice that applies

0 = No Goshawk detected
1 = Possible goshawk detected
2 = Probable goshawk detected
3 = Probable goshawk with behaviors generally associated with nesting
4 = Positive identification of goshawk
5 = Positive goshawk with behaviors generally associated with nesting

OTHER SPECIES

Pick highest choice that applies

0= No raptor detected
1= Possible other raptor species detected
2= Probable other raptor species detected
H = Positive identification of Northern Harrier
M = Positive identification of Merlin
O = Positive identification of an Osprey
P = Positive identification of Peregrine Falcon
R = Positive identification of Red-tailed Hawk
S = Positive identification of Sharp-shinned Hawk
(Excluding Bald Eagles)

NOGO nests

Pick highest choice that applies

0 = no new nest or sign
1 = possible prey remains of NOGO
2 = NOGO feathers
3 = NOGO feathers and possible prey remains
4 = newly located possible NOGO nest

FOREST PLANT ASSOCIATION KEYS

KEY TO VEGETATION SERIES, KETCHIKAN AREA

Text in bold provides an overview of the ecological zones. Follow the numbered couplets to determine the vegetation series. Individual keys for plant associations within each series immediately follow this key.

1. Mountain hemlock cover is at least 20 %.

Mountain Hemlock Ecological Zone
High elevation, cold temperatures

2. Sitka spruce cover is at least 10 %.

Sitka Spruce Ecological Zone (High Elevation Portion Only)
Soils characterized by disturbance: soil water movement

SITKA SPRUCE SERIES, High Elevation Associations (Chapter 9, part)

2. Sitka spruce cover is less than 10 %.

MOUNTAIN HEMLOCK SERIES (Chapter 8)

1. Mountain hemlock cover is less than 20 %.

3. Shore pine cover is at least 20%.

Cedar-Hemlock Ecological Zone
Generally poor soil drainage. Lowlands, rolling hills, benches. Includes Shore Pine, Mixed Conifer, and Western Hemlock-Western Redcedar Series (part).

SHORE PINE SERIES (Chapter 3).

3. Shore pine cover is less than 20%.

4. Sum of mountain hemlock overstory cover and understory cover is at least 3%.

MIXED CONIFER SERIES (Chapter 4)

4. Sum of mountain hemlock overstory cover and understory cover less than 3%.

5. Western redcedar cover is at least 10%.

WESTERN HEMLOCK-WESTERN REDCEDAR SERIES (Chapter 5)

5. Western redcedar cover is less than 10%.

Western Hemlock Ecological Zone

Generally well-drained hill- and mountainsides.

Includes Western Hemlock, Western Hemlock-Yellowcedar,
and Western Hemlock-Western Redcedar Series (Part)

6. Yellowcedar cover is at least 10%.

WESTERN HEMLOCK-YELLOWCEDAR SERIES (Chapter 7)

6. Yellowcedar cover is less than 10%.

7. Sitka spruce cover is at least 15%.

Sitka Spruce Ecological Zone

Characterized by disturbance: Alluvial, beachfront,
mass movement, or excessive soil water movement soils

SITKA SPRUCE SERIES (Chapter 9)

7. Sitka spruce cover is less than 15%.

WESTERN HEMLOCK SERIES (Chapter 6)

KEY TO SHORE PINE SERIES (600)

Barely forest, this series represents a transition from non-forest peatlands (muskegs) to open forest (Mixed Conifer). Mostly on lowlands and rolling hills below 1,000 feet elevation.

CODE

1. Tufted clubrush cover is at least 3%.

640 SHORE PINE/TUFTED CLUBRUSH

1. Tufted clubrush is less than 3%.
2. Sitka sedge (tall sedge) cover is at least 3%.

630 SHORE PINE/SITKA SEDGE

2. Sitka sedge cover is less than 3%.
3. Salal cover is at least 5%.

650 SHORE PINE/SALAL

3. Salal cover is less than 5%.

610 SHORE PINE/CROWBERRY

KEY TO WESTERN HEMLOCK-WESTERN REDCEDAR SERIES (700)

Transition from the Cedar-Hemlock to Western Hemlock Ecological Zone, on a variety of landforms up to 1,000 feet elevation.

CODE

1. Salal cover is 3% or greater.

2. Skunk cabbage cover is 3% or greater.

765 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY-SALAL/SKUNK CAB-
BAGE

2. Skunk cabbage cover is less than 3%.

3. Blueberry cover is 5% or greater.

760 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY-SALAL

3. Blueberry cover is less than 5%.

780 WESTERN HEMLOCK-WESTERN REDCEDAR/SALAL

1. Salal cover is less than 3%.

4. Swordfern cover is 3% or greater.

720 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY/SWORDFERN

4. Swordfern cover is less than 3%.

5. Skunk cabbage cover is 3% or greater.

730 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY/SKUNK CAB-
BAGE

5. Skunk cabbage cover is less than 3%.

6. Combined cover of shield fern and devil's club is at least 5%.

750 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY, WELL-
DRAINED VARIANT

6. Combined cover of shield fern and devil's club is less than 5%.

710 WESTERN HEMLOCK-WESTERN REDCEDAR/BUEBERRY

KEY TO WESTERN HEMLOCK SERIES (CODE 100)

Generally on well-drained hill- and mountainsides, this series comprises the bulk of the Western Hemlock Ecological Zone.

CODE

1. Devil's club cover is 10% or greater.

2. Salmonberry cover is 10% or greater.

150 WESTERN HEMLOCK/DEVIL'S CLUB-SALMONBERRY

2. Salmonberry cover is less than 10%.

140 WESTERN HEMLOCK/BLEUBERRY/DEVIL'S CLUB

1. Devil's club cover is less than 10%.

3. Skunk cabbage cover is 3% or greater.

130 WESTERN HEMLOCK/BLEUBERRY/SKUNK CABBAGE

3. Skunk cabbage cover is less than 3%.

4. Spinulose shield fern cover is 2% or greater.

120 WESTERN HEMLOCK/BLEUBERRY/SHIELD FERN

4. Spinulose shield fern cover is less than 2%.

110 WESTERN HEMLOCK/BLEUBERRY

KEY TO WESTERN HEMLOCK-YELLOWCEDAR SERIES (CODE 200)

Most common at higher elevations (1,000-1,500 feet) in the Western Hemlock Ecological Zone.

CODE

1. Devil's club cover is 5% or greater.

250 WESTERN HEMLOCK-YELLOWCEDAR/BLUEBERRY-DEVIL'S CLUB

1. Devil's club cover is less than 5%.

2. Skunk cabbage cover is 3% or greater.

220 WESTERN HEMLOCK-YELLOWCEDAR/BLUEBERRY/SKUNK CABBAGE

2. Skunk cabbage cover is less than 3%.

210 WESTERN HEMLOCK-YELLOWCEDAR/BLUEBERRY

KEY TO MOUNTAIN HEMLOCK SERIES (Code 500)

Generally above 1,500 feet elevation, on mountain shoulders and summits.

CODE

1. Combined cover of Cassiope species and Luetkea is at least 3 %.

530 MOUNTAIN HEMLOCK/CASSIOPE

1. Combined cover of Cassiope species and Luetkea is less than 3 %.

2. Copperbush cover is 15 % or greater.

520 MOUNTAIN HEMLOCK/COPPERBUSH

2. Copperbush is less than 15 percent.

510 MOUNTAIN HEMLOCK/BLUEBERRY

KEY TO SITKA SPRUCE SERIES (300)

Characterized by soil disturbance (riparian, soil mass movement, water moving laterally through soil profile). Associations 390-391 are usually above 1,500 feet; others are at low elevation in riparian zones.

CODE

1. Mountain hemlock cover is at least 20% (High Elevation Associations).

2. Marsh marigold cover is at least 3%.

391 SITKA SPRUCE-MOUNTAIN HEMLOCK/BUEBERRY/MARSH MARIGOLD.

2. Marsh marigold cover is less than 3%.

390 SITKA SPRUCE-MOUNTAIN HEMLOCK/BUEBERRY.

1. Mountain hemlock cover is less than 20%.

3. Red alder overstory cover is at least 10%.

350 SITKA SPRUCE/RED ALDER

3. Red alder overstory cover is less than 10%.

4. Devil's club cover is 10% or greater.

5. Salmonberry cover is at least 10%.

335 SITKA SPRUCE/DEVIL'S CLUB-SALMONBERRY

5. Salmonberry cover is less than 10%.

6. Skunk cabbage cover is 3% or greater.

340 SITKA SPRUCE/DEVIL'S CLUB/SKUNK CABBAGE

6. Skunk cabbage cover is less than 3%.

330 SITKA SPRUCE/DEVIL'S CLUB

4. Devil's club cover is less than 10%.

7. Salmonberry cover is at least 10%.

380 SITKA SPRUCE/SALMONBERRY

7. Salmonberry cover is less than 10%.

8. Devil's club cover is at least 5%.

320

SITKA SPRUCE/BLEUEBERRY/DEVIL'S CLUB

8. Devil's club cover is less than 5%.

9. Skunk cabbage cover is 3% or greater.

370

SITKA SPRUCE/BLEUEBERRY/SKUNK CABBAGE

9. Skunk cabbage cover is less than 3%.

10. Grass cover (primarily Pacific reedgrass) is at least 10%.

360

SITKA SPRUCE/PACIFIC REEDGRASS

10. Grass cover is less than 10%.

310

SITKA SPRUCE/BLEUEBERRY

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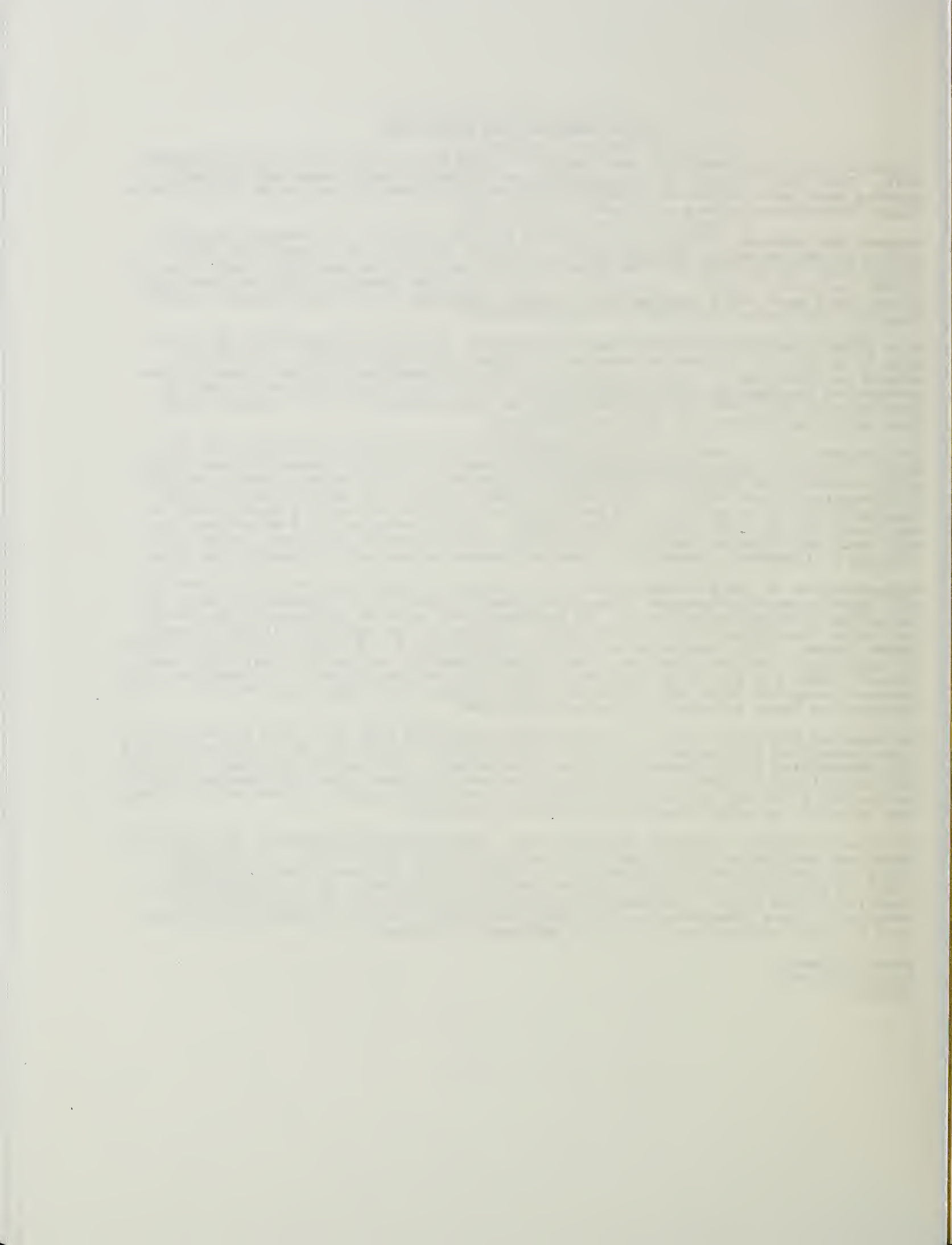
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Karen Dillman,
Ketchikan Area
Botanist



Appendix H

INVENTORY/MONITORING PROTOCOL EXAMPLES

Protocols were developed for all elements of monitoring in 1997 and continue to be refined. These protocols provide the best available direction and methods for monitoring the various indicators we are looking at.

Wilderness Recreation Impact Indicators

The Wilderness Primitive Recreation Inventory and Monitoring elements, for the purpose of documenting conditions have been broken up into five separate category: general information, facilities and campsite impacts, trail impacts, social impacts, and potential primitive recreational opportunity. The following outlines these elements as seen on field forms and in data base.

General Information: Mandatory information for all point counts.

- Evaluators initials
- Date
- Weather
- Recreation Opportunity Spectrum (ROS)
- Area/Cluster name
- USGS Quad
- Transect, trail, or route name
- Elevation
- Aspect
- Baring
- Point of origin
- Point of termination
- Vegetative cover: plant association
- Area crosshatches
- Site characteristics
- Photo points

Facilities and Campsites: Cabin/Shelter/Campsites/Potential sites (Primary indicators typically used for determining campsite conditions)

- Site size: schematic drawing of site shape with transects criss-crossing site at multiple angles. (see example)
- Vegetation loss: a % of vegetative loss within the site area as compared to off site vegetative conditions. (see example)
- Denuded ground: a % of the site that is totally void of vegetation. (see example)
- Exposed mineral soil: a % of the site that is exposed down to the mineral soil layer. (see example)
- Fire rings: # of fire rings on site. (see example)
- Fire scars: # of fire scars on site. (see example)
- Tree stems: # of tree stems on site 5' or taller. (see example)
- Tree damage/scarred trees: # of damaged or scared trees. (see example)
- Trees cut: # of cut stumps. (see example)
- Exposed roots: # of trees with exposed roots due to use. (see example)
- Amount of litter collected: Heavy - Moderate - Light - None
- Primitive structures: # of structures on site. (see example)
- Vandalism: Damage to structures. (see example)

Social trails: Number - Length - Destination (see example)
Beach condition: Slope - Texture - Distance
Closest system or access trail: Feet or milage increments
Closest site or facility: Distance - Direction - Screening
Distance to fresh water: (type)
Sites within site and sound: Distance - Direction - Screening
Use level: Heavy - Moderate - Light

Trail Inventory/Monitoring:

(To determine resource damage, improvements, building material, recreation use

Inventory/Monitoring indicators

- Tread width: Range (see example)
- Tread depth: Range (see example)
- Vegetative corridors, clearing widths and heights: Range (see example)
- Social Trails: Number - Length - Destination
- Litter along trail: Heavy - Moderate - Light - None
- Tread type: Natural - Puncheon - Wood chips
- Difficulty Level: Difficult, Moderate, Easy
- Overall trail condition

Social Disturbance Indicators:

(to determine experiential quality)

Inventory/Monitoring indicators

- Trail encounters: # of people encountered on trail/route. (see example)
- Private boat encounters sail/motor: # and type of pleasure boats observed. (see example)
- Commercial boat encounters: # and type class of ship. (see example)
- Paddlers kayaks/canoes): # of paddlers observed. (see example)
- Plane encounters: Beaver - Otter - Other, Location, Direction, Elevation, Landings. (see example)
- Helicopter encounters: Type/Direction/Elevation/Landings. (see example)
- Campsite encounters: people encountered at camp. (see example)
- overall experience rating: Excellent/Good/Fair/Poor

Primitive Recreational Opportunity:

(to inventory the potential primitive recreational opportunity)

Inventory/Monitoring indicators

- Soil type: Muskeg, rock, duff
- Wildlife sittings
- Route difficulty: distance measured in time, % slope. (see example)
- Tread Development: (game trails etc...)
- Points of interest: (rock walls, peaks, lakes, vegetation, viewsheds, rivers, etc...)

This system of monitoring is based on observations. "Observation Data Collection". VCU's have been selected based on use, routes through these VCU's have been identified based on the probability of existing or future recreation use or interest. They include ridge lines, drainages, lakeshores primarily.

Point counts and monitoring information will be mandatory at: trail/route origins and terminations, at all point of interest or attraction ie. campsites, use areas, etc...

The monitoring will be a combination of completing worksheet data, mapping routes and point count locations, photo documentation, and transposing field data to data base tables and GIS maps, organizing photos and field narrative reports.

When completing a worksheet, only fill in the blanks that apply. For example if you are evaluating a campsite or potential campsite, the specific campsite info will have to be completed. Where as if you are evaluating a trail/route, only those categories would have to be completed. Or if you are evaluating an attraction ie. scenic opportunity, rock wall, glacier, wildlife, etc... Only that portion would have to be completed. Point counts of all kinds are reported on a map and labeled.

Social encounters are reported as an on-going part of the job, we are looking for daily totals of encounters and their locations. For example: # of flights, type, elevation range, location.

General information applies to all monitoring categories and should be documented at every observation point.

Minimum standards for monitoring conditions are trail/route origins and terminus and a randomly selected point count per one mile of ground covered. To describe basic area and site characteristics.

Vegetation Sampling Protocols for Assessing Site Disturbance at Recreation Sites

Introduction

The following protocols are designed to assess site disturbance at various recreation sites, such as cabins, shelters, campgrounds and trails. Assessing site disturbance is important for monitoring impacts and/or change through time. One way of assessing site disturbance is to determine the vegetation composition and percent cover at the site and monitoring it from one year to another. Ideally, the site should have the vegetation composition and percent cover determined prior to site impacts, but where this is not possible, the first year of vegetation sampling will be considered time zero: that is the first year of sampling will be the basis for comparing site disturbances in future years.

The vegetation sampling protocols should be considered guidance. It is important to use on-site judgement when determining exact distance measurements and other techniques. The protocols are divided into two separate sampling designs: one used for trails and the other used for cabins, shelters and other structures.

The most common sampling design for documenting the effects of trampling is one that compares the vegetation along an established trail/rec site to vegetation some distance from the trail/rec site, usually at one point in time. (Sutter and Benjamin, 1993). The plant community is not sampled prior to trail/rec site establishment, so it is assumed that differences between the trail/rec site and the control plots result from trampling.

Sampling Methods

Because these plots will be revisited every few years and should be considered somewhat permanent, it will be critical to make accurate documentation of where plots were taken if permanent markers are not used (such as rebar for plot center). Use permanent features of the landscape or permanent markers, such as the cabin door or culverts along a trail, to make your first measurements. These features will be referred to as the **reference point**. (This protocol is to be carried out at user made and system trails, existing and potential recreation sites, and identified helicopter landing sites.)

Trails

A minimum of two points along the trail will be randomly selected for taking disturbance plots. In addition, disturbance plots will be taken wherever any disturbance is observed along the trail. A belt transect will be placed perpendicular to the selected points along the trail. Transects will be of varying lengths. Use the following procedure as a general rule, but don't hesitate to modify the procedure when needed.

1. Select random points along a trail in addition to areas where disturbance is observed. Starting at the beginning of the trail, select the first point randomly. For example, the first point will be the fourth culvert along the trail. This is the reference point. Fully describe the features of the reference point by documenting the permanent feature and possibly other surrounding features that will aid in finding the exact location from one year to the next. From the reference point, you may measure 50 feet to establish the first belt transect. Transect azimuths and distance measurements will be measured from this starting point. Take a photo of the starting point, documenting where your photo point was taken. If the trail is

boundary of each impact zone needs to be marked on the transects, with a distance taken from the starting point.

4. From the starting point, randomly select one sample plot from each zone obtaining distance and azimuth from the starting point of each plot. For each plot, measure a distance of 3.0 feet in four directions to delineate plot.

Definitions

Site Name: The trail cabin or campsite name or number, if known. Some other description if unknown.

Photo Point: Describe the exact position the phot was taken. For example, 3 feet from the fire-ring on a 260 degree azimuth.

Reference Points: Some permanent feature in the landscape where the first measurement is taken to the starting point.

Starting Point: The laymen term for epicenter.

Trail Starting Point: The mid point of the trail where the belt transect is established along a specific azimuth reading.

Recreation Site Starting Point : The mid point of the rec site where the first measurements and azimuths will be taken for establishing plots along the belt transects.

Distance to Starting Point: A measurement taken from the reference point to the starting point.

Plant Association: The climax forest community represented by describing overstory tree, understory shrub and understory forb, graminoid and fern indicator plants.

Plant Community: A vegetation type that is not at its climax stage of development, but at some earlier seral stage. These include the following:

1. Forest: a) second growth
2. Scrub: a) dwarf tree scrub
 b) Tall shrubs (> 5 feet)
 c) Low shrubs (5 feet to 8 inches)
 d) dwarf scrub (less than 8 inches)
3. Herbaceous: a) Graminoid
 b) Forb/Fern
 c) Moss
 d) Lichen
 e) Aquatic-freshwater
 f) Aquatic-salt water
 g) Aquatic-brackish water

Azimuth from Starting Point: Compass bearing taken from the starting point to establish the plots along the belt transect.

Distance from Starting point to plot center: Measure the distance from the starting point to the first plot center.

Plot center: The center of each plot where distances are measured to the starting point and to other plot centers along the same belt transect.

Impact Zones:

- Natural = no evidence of disturbance
- Moderate = 1-50% trampling
- Heavy = > 50% trampling
- Severe = totally denuded soil/fire ring

Percent Trampling: Determine the percentage of the plot where evidence of trampling has occurred.

Use the following categories:

- 0 = no evidence of trampling (no impacts)
- 1 = 1-25% of the plot trampled (low impacts)
- 2 = 26-50% of the plot trampled (moderate impacts)
- 3 = >50% of the plot trampled (heavy impacts)

To determine if trampling is present, use the following characteristics:

- 1) exposed mineral or organic soil
- 2) matted moss or matted vegetation
- 3) dead vegetation
- 4) broken branches and twigs
- 5) footprints
- 6) other disturbances

Percent Cover: Determine the approximate percent cover for each of the following categories within each plot.

- 1) S = bare soil (particles < 1/16 in diameter (mineral and organic)
- 2) G = gravel (particles > 1/16 to 3 inches in diameter)
- 3) R = Rock (particles > 3 inches in diameter)
- 4) L = litter and duff. Litter includes freshly fallen leaves, needles, twigs, bark fruits; duff is the fermentation layer and humus layer.
- 5) V = Vegetation. Vegetation includes, shrubs, forbs, ferns, grasses, sedges, rushes, mosses, lichens, liverworts. (see species check list).
- 6) W = Water

The above cover estimates should use the following cover classes and codes:

Code	<u>Class</u>
0	0%
T	0 - 0.1%
1	0.1-1%
3	1-4.9%
10	5-10%
20	11-25%
30	26-35%
40	35-45%
50	46-55%
60	56-65%
70	66-75%
80	76-85%
90	86-95%
98	96-100%

Data Items

Recommended for inclusion in the Wilderness Ecology crew's vegetation survey. This info can be taken very quickly outside of each disturbed site as well as on transects between sites. (possibly Tongass Continuous Forest Inventory grid plots that correspond to route of travel).

Data can be stored in the Silviculture information System until such time as conversion to FSVEG is implemented.

Would like to combine with P.Krosse protocol for disturbed sites and make one plot card.

Plot Size and Location

Plots will be fixed 1/3 acre (40.5 foot radius), same as used to derive plant associations. They will be located using the same grid pattern used to identify location of stand exam plots and taken in the following locations:

- a) Undisturbed ring around disturbance sites. These plots will serve as a control.
- b) On or near any grid locations that fall within the crew's line of travel

All plot locations will be marked on a stand map or aerial photograph.

Plot Data

Derived in office:

TM Compartment

Stand

District Number

Management Area

Land Status

Collected in field:

Slope

Aspect

Plant Association

The potential vegetative community that develops over time. This is in the SIS_STAND table.

Item Name PLANT_ASSOC

Code	Plant Association Description
100	Western hemlock series
110	Western hemlock/blueberry
120	Western hemlock/blueberry/spinulose shield-fern
130	Western hemlock/blueberry/skunk cabbage
140	Western hemlock/blueberry/devil's club - deep, well drained
150	Western hemlock/devil's club - shallow soils
155	Western hemlock/devil's club/salmonberry
160	Western hemlock/devil's club
170	Western hemlock/devil's club/skunk cabbage
200	Western hemlock-Alaska cedar series
210	Western hemlock-Alaska cedar/blueberry
220	Western hemlock-Alaska cedar/blueberry/skunk cabbage
230	Western hemlock-Alaska cedar/blueberry-rusty menziesia
250	Western hemlock-Alaska cedar/blueberry/devil's club
300	Sitka spruce series
310	Sitka spruce/blueberry
320	Sitka spruce/blueberry/devil's club

Code	Plant Association Description
330	Sitka spruce/devil's club
335	Sitka spruce/devil's club/salmonberry
340	Sitka spruce/devil's club/skunk cabbage
345	Sitka spruce/devil's club - upland
350	Sitka spruce/alder
351	Sitka spruce/alder/devil's club
352	Sitka spruce/red alder
353	Sitka spruce/Sitka alder
355	Sitka spruce/devil's club/enchanters nightshade
360	Sitka spruce/Pacific reedgrass
370	Sitka spruce/blueberry/skunk cabbage
380	Sitka spruce/salmonberry
390	Sitka spruce/mountain hemlock/blueberry
391	Sitka spruce/mountain hemlock/blueberry/marsh marigold
395	Sitka spruce-mountain hemlock/blueberry-devil's club
400	Mixed conifer series
410	Mixed conifer/blueberry
420	Mixed conifer/blueberry/skunk cabbage
430	Mixed conifer/blueberry/deer cabbage
440	Mixed conifer/skunk cabbage-lady fern
450	Mixed conifer/salal/deer cabbage
460	Mixed conifer/blueberry/salal

Code	Plant Association Description
465	Mixed conifer/blueberry-salal/deer cabbage
470	Mixed conifer/salal/skunk cabbage
480	Mixed conifer/salal
490	Mixed conifer/copper bush
500	Mountain hemlock series
510	Mountain hemlock/blueberry
511	Mountain hemlock-Sitka spruce/blueberry
515	Mountain hemlock/blueberry - low elevation
520	Mountain hemlock/blueberry/copper bush
530	Mountain hemlock/cassiope
540	Mountain hemlock/blueberry-copperbush/deer cabbage
550	Mountain hemlock-Alaska cedar/blueberry
560	Mountain hemlock-Alaska cedar/blueberry-copper bush/deer cab
570	Mountain hemlock/blueberry/marsh marigold
580	Mounatin hemlock/blueberry/skunk cabbage
600	Shore pine series
610	Shore pine/crowberry
620	Shorepine/blueberry
630	Shorepine/Sitka sedge
640	Shorepine/tall sedge
650	Shore pine/salal
700	Western hemlock-western red cedar series

Code	Plant Association Description
710	Western hemlock-western red cedar/blueberry
720	Western hemlock-western red cedar/swordfern
730	Western hemlock-western red cedar/blueberry/skunk cabbage
750	Western hemlock-western red cedar/blueberry-well drained
760	Western hemlock-western red cedar/blueberry/salal
765	Western hemlock-western red cedar/blueberry-salal/skunk cab
780	Western hemlock-western red cedar/salal.
800	Pacific Silver Fir
900	Subalpine fir series
AD	Alpine Dwarf Forest or Shrubland, Non-wetland
AL	Alpine Lichen-Rock Outcrop, Non-wetland
AM	Alpine Meadow, Non-wetland
BE	Scrub-Shrub Evergreen Muskeg
BH	Alder Shrublands on Mountain Slopes
BR	Scrub-Shrub Riparian
BW	Scrub-Shrub Willow
DA	Cottonwood/Alder
DC	Cottonwood
EF	Emergent Mixed Forb/Grassland (Not normal tide)
EM	Subtidal Unconsolidated (Unvegetated Mudflats)
ES	Emergent Estuary Sedge Tidal Flat
FE	MXDCON & Emergent Wetland Complex

Code	Plant Association Description
FM	MXDCON & Moss-Lichen Wetland Complex
LA	Lacustrine (Lakes and Ponds)
MP	Emergent Sphagnum Peat Muskeg
MS	Emergent Short Sedge Muskeg
MT	Emergent Tall Sedge Muskeg
UG	Upland Mixed Forb/grassland

Stand StructureStand Structure

Code to describe the distribution of tree size classes. This is in the SIS_STAND table.

Item Name STAND_STRUCTURE

Code	Stand Structure Description
1	<u>Even-aged-single storied</u> - A single even canopy characterizes the stand. The greatest number of trees are in a height class represented by the average height of the stand; there are substantially fewer trees in height classes above and below this mean.
2	<u>Even-aged-two storied</u> - Two relatively even canopy levels can be recognized in the stand. The frequency distribution of trees by height class tends to be bimodal. Neither canopy level is necessarily continuous or closed, but both canopy levels tend to be uniformly distributed across the stand.
3	<u>Uneven-aged</u> - At least three size classes are commonly represented in the stand. Generally, the canopy is broken and uneven although multiple canopy levels may be distinguishable. The various size classes tend to be uniformly distributed throughout the stand.

Code	Stand Structure Description
4	<u>Mosaic</u> - At least two distinct size classes are represented and these are not uniformly distributed, but are grouped in small repeating aggregations, or occur as stringers less than two chains wide, throughout the stand. Each size class aggregation is too small to be recognized and mapped as an individual stand. The aggregations may or may not be even-aged.
5	<u>Two-aged</u> - Two distinct age classes are represented. The stand may be two-aged or trend towards uneven-aged as a consequence of both an extended rotation period of regeneration establishment and/or the retention of reserve trees that may represent one or more age classes.

Snag Condition

Code to describe the size and deterioration of the standing dead trees. This is found in the SIS_STAND table.

Item Name SNAG_CONDITION

Code	Snag Condition Description
0	No snags per acre and no condition class
10	10-31.9 inch DBH Class Condition Unknown
11	10.0-31.9 inch DBH, live tree
12	10.0-31.9 inch DBH, dead tree
40	32 inch or greater DBH Class Condition Unknown
41	Greater than 32" DBH, live tree
43	Greater than 32" DBH, tree dead

Goshawk Surveys - General Instructions:

Crew will follow the survey protocol. Two surveys will be done in each VCU during the first tour. If the VCU has a trail, do one survey transect along the entire length of the trail. Then do a second transect through an area of suitable habitat (generally timbered stands with volume class 4 or higher). These surveys may be done in conjunction with another type of survey, if convenient (i.e. recreation use). If there is no trail in the VCU, do the two survey transects in different areas of suitable habitat.

The spacing between call stations along the survey transect may vary with the habitat. But try to play the tape a minimum of every 1/4 mile in distance along the transect route. If you get a response, try to locate the nest if possible. In addition to the two transects, you can also use observation stations. If you find a location which allows you to overlook a suitable habitat stand, you may spend 2-4 hours sitting and watching for flight activity above the stand.

The following steps should be done to complete the surveys:

1. Fill out a separate Goshawk Survey Form for each transect or stationary observation point. Use a consecutive numbering scheme.
2. Mark the exact location of each transect or stationary observation point on the map. Also mark the individual call stations along the transect route.
3. Be sure to record the start and end time of all goshawk surveys (include travel time to and from the start of the transect, if you are actively watching for goshawks as you hike there.)
4. If you locate a goshawk nest, fill out a Nest Monitoring Form, clearly mark the location on the map, and notify the District Biologist at first opportunity.
5. Other raptor species observed during these surveys should be recorded on a general Wildlife Observation Form.

Equipment needed:

- goshawk blaster
- goshawk call tape
- binoculars
- batteries
- quad map or Fasmap for VCU
- Goshawk Survey Forms
- Nest Monitoring Forms
- Rite-In-Rain pen. pencils

Spotted Frog Surveys - General Instructions:

Crew will cover "likely" spotted frog habitat of each VCU once. "Likely" habitat includes slow moving streams or rivers, shallow freshwater side channels, ponds and lake shores with submerged or partially emergent vegetation. Two methods will be used: a) set baited minnow traps in groups of six (6) following the survey protocol; and b) walk through as much habitat as possible listening for vocalizations and looking for spotted frogs, tadpoles, or egg masses.

Traps will be set for 2-3 days, checked for captures, and then moved and reset in a new transect location. Trapping should be done during the entire time the crew is in the low elevation areas of the VCU (i.e. 2-3 different trap transect locations should be able to be accomplished in each VCU). The following steps should be taken to complete the surveys:

1. Set traps in groups of six (6), leave in place 2-3 days, move to new location and repeat. Flag traps w/ biodegradable flagging to ensure they are all found. Remove all flagging when traps are picked up!
2. Record water temperature at trap locations when set and when removed.
3. Fill out a separate Spotted Frog Survey Form for each grouping of traps.
4. Mark the exact location of each minnow trap on the map.
5. Walk through as many other areas of likely habitat as time allows (*plan to spend a minimum of one [1] full day or several partial days per VCU*). Try to walk through a full range of habitat types (i.e. riverbanks, small ponds, lake shores, creek side channels, marshes, muskegs, etc.).
6. Clearly mark the transect routes that are walked on the map, and record the dates and total length of time spent surveying. This can be recorded in the General Description section of a Spotted Frog Survey Form.

Equipment needed:

- thermometer
- minnow traps (6)
- flagging (biodegradable)
- canned minced clams (9 cans per VCU)
- can opener
- ziplock bags
- quad map or Fasmag for VCU
- survey forms
- pencils/pens

Bald Eagle Surveys - General Instructions:

Crew will cover the entire saltwater coastline of each VCU once by kayak. Look at all areas within 200 meters of saltwater, including estuaries. If **known** nests are shown on the maps, try to locate them and use the top of the monitoring form to record nest condition. If **new** nests are located, do the following:

1. Observe the nest, its condition, location, and occupancy.
2. Fill out a USFWS nest data card. You may need to go ashore to collect the necessary information.
3. Mark the exact location on the map with the number from the data card, and fill in the bottom of the monitoring form.
4. When you return to the office, place the orange plastic USFWS sign (with the corresponding number from data card) in the Bald Eagle Survey File.

If a canoe or rowboat is available, cover the entire shoreline of lakes within each VCU. Follow the same instructions for relocated or new nests that were used on the saltwater coastline.

Equipment needed:

- kayak, canoe, or rowboat
- binoculars
- quad map or Fasmap for VCU
- monitoring forms
- USFWS nest data cards
- pencils/pens

VCU #	Name	Miles of Ocean Coast	Time	Miles of Lake Shore	Time	Total Time Needed
7730	Ella	4	0.5 day	11	1.0 day	2 days
8200	Checats	8	1.0 day	12	1.0 day	2 days
8210	Winstanley	16	1.5 day	6	0.5 day	2 days
8530	Fillmore Inlet	13	1.0 day	0	0.0 day	1 day
7740, 7750	Manzanita	16	1.5 day	15	1.5 day	3 days
8260, 8269	Bakewell					

Small Mammal Surveys - General Instructions:

Crew will cover small mammal habitat of each VCU once. A trapline should be set in a variety of habitats. Set at least one trap line in each habitat type found within a VCU (forest, muskeg/marsh, estuary, riparian corridors, alpine). Follow the survey protocol.

40 traps (combination of live traps and snap traps) will be set in each transect line, and left overnight. They will then be checked for captures, and moved and reset in a new transect location. The same configuration of live and snap traps should be used each time. Ideally, 4-5 different transects should be accomplished in each VCU. At least one transect will be done in the alpine. The following steps should be taken to complete the surveys:

1. Set traps in traplines of 40 traps (follow protocol), leave in place overnight, move to new location and repeat. Flag traps w/ biodegradable flagging to ensure they are all found. Remove all flagging when traps are picked up!
2. Fill out a separate Small Mammal Trapline Form for each trapline; if the same trapline is run more than one day, use a new form for each day. Use a consecutive numbering scheme.
3. Mark the exact location of each trapline on the map.
4. Collect all trapped mammals in Nalgene bottles with 95% ethanol. Tag each specimen; make sure each specimen number corresponds with the appropriate trapline number.

Equipment needed:

- live traps (20)
- snap traps (20)
- flagging (biodegradable)
- oatmeal
- peanut butter
- 1 qt. Nalgene bottles (2)
- 95% ethanol (1 qt.)
- specimen tags
- plastic baggy ties
- ziplock bags
- quad map or Fasmap for VCU
- Sm. Mammal Trapline Forms
- Rite-In-Rain pen, pencils

Marbled Murrelet Surveys - General Instructions:

Crew will follow the survey protocol for Intensive Surveys. Four surveys will be done in each VCU (two during the first trip and two during a second trip later in the summer). The surveys are started 90 minutes *before* official sunrise and end 60 minutes *after* official sunrise, for a total survey time of 2.5 hours.

The first survey for each VCU will be done in conjunction with the NTMB Point Count transect for that VCU; i.e. conduct the Marbled Murrelet survey and when it is finished, immediately begin the NTMB Point Count transect. The point counts will only be done once per VCU, so the other Marbled Murrelet surveys can be done by themselves. They should be separated in time by six days, so the best way to schedule that is to do the MMurr/NTMB surveys at the beginning of a tour and do the second MMurr survey near the end of the tour in each VCU.

Suitable habitat for murrelets is mature and old growth forests. Survey site locations can be anywhere near or in forested stands (along the trail is fine). Pick your survey site in an opening or muskeg where you will have an unobstructed view of the sky and are not near loud sounds like creeks or surf. One of the four surveys should be done in the alpine area. Do not do the surveys in heavy rain, wind, or fog, but light rain or moderate fog is OK (detections have been found to occur over a longer period of time in light rain/fog). The following steps should be taken to complete the surveys:

1. Leave the camp early enough to ensure you are at the chosen survey site a full 90 minutes before official sunrise.
2. Fill out a separate Marbled Murrelet Forest Survey Form for each day. Use a consecutive numbering scheme.
3. Mark the exact location of each survey site on the map.

Equipment needed:

- headlamp or flashlight
- binoculars
- wristwatch
- compass
- tape recorder
- batteries
- quad map or Fasmap for VCU
- Marbled Murrelet Forest Survey Forms
- Rite-In-Rain pen, pencils

NTMB Point Counts - General Instructions:

Crew will do one off-road point count in each VCU, during the first tour to that VCU. Follow the standard protocol, and set up the transect on the trail within the VCU. For the two which don't have trails, choose an appropriate route which goes through a variety of habitat types. A second point count could be accomplished in the alpine area during the second tour if time allows.

The point count should be done on the same day as the first marbled murrelet dawn count, directly following the conclusion of the dawn count.

The following steps should be taken to complete the surveys:

1. Try to repeat the previous point count stations on Ella and Winstanley Trails.
2. Clearly mark the point count transect routes that are walked on the map.
3. Write a general description of the transect route on the data form. This should include total distance covered, types of habitat, weather conditions, and any notes of interest.

Equipment needed:

- binoculars
- quad map or Fasmapi for VCU
- survey forms
- pencils/pens

Wildlife Observations - General Instructions:

This one is easy - basically, keep copious notes and write down any sightings of wildlife as you travel around the VCU's. Try to record what kind of habitat they are in, their behavior, the number of animals observed, etc.

1. Fill out Wildlife Observation Form.
2. Clearly mark the observation site on the map.
3. If the following are seen, report immediately to the District Biologist (use radio):

Goshawks	Peregrine Falcon
Osprey	Great Blue Heron Rookeries
TES Plant Species	Large (12"-36" dia.) Stick Nests (not eagles)
Marbled Murrelet Eggs or Nests	

Equipment needed:

- binoculars
- quad map or Fasmap for VCU
- Wildlife Incidental Observation forms
- pencils/pens

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Appendix I

CREW ITINERARY

Creative scheduling is necessary in order to see each VCU in the kind of detail we feel is necessary to document the condition in that area. Tour lengths can vary from 5 to 25 days with an average of about 10 days. In the spirit of Wilderness we have attempted to accomplish this work manually, minimizing motorized support as much as possible.

1999
ECOSYSTEM MONITORING CREW ITINERARY

17 May - 21 May: Lake system off of Sargent Bay (VCU 7740) (on the job training trip)
HEINEN, POST, CRABLE, REESE

2 June - 17 June: Tour 1 - 16 days in field, 1 day in office
Sargent Bay to Head of Rudyerd Bay
Rudyerd River (VCU 7980)
Saltwater up to Walker Cove (VCU 8000, 7990)
HEINEN, REESE

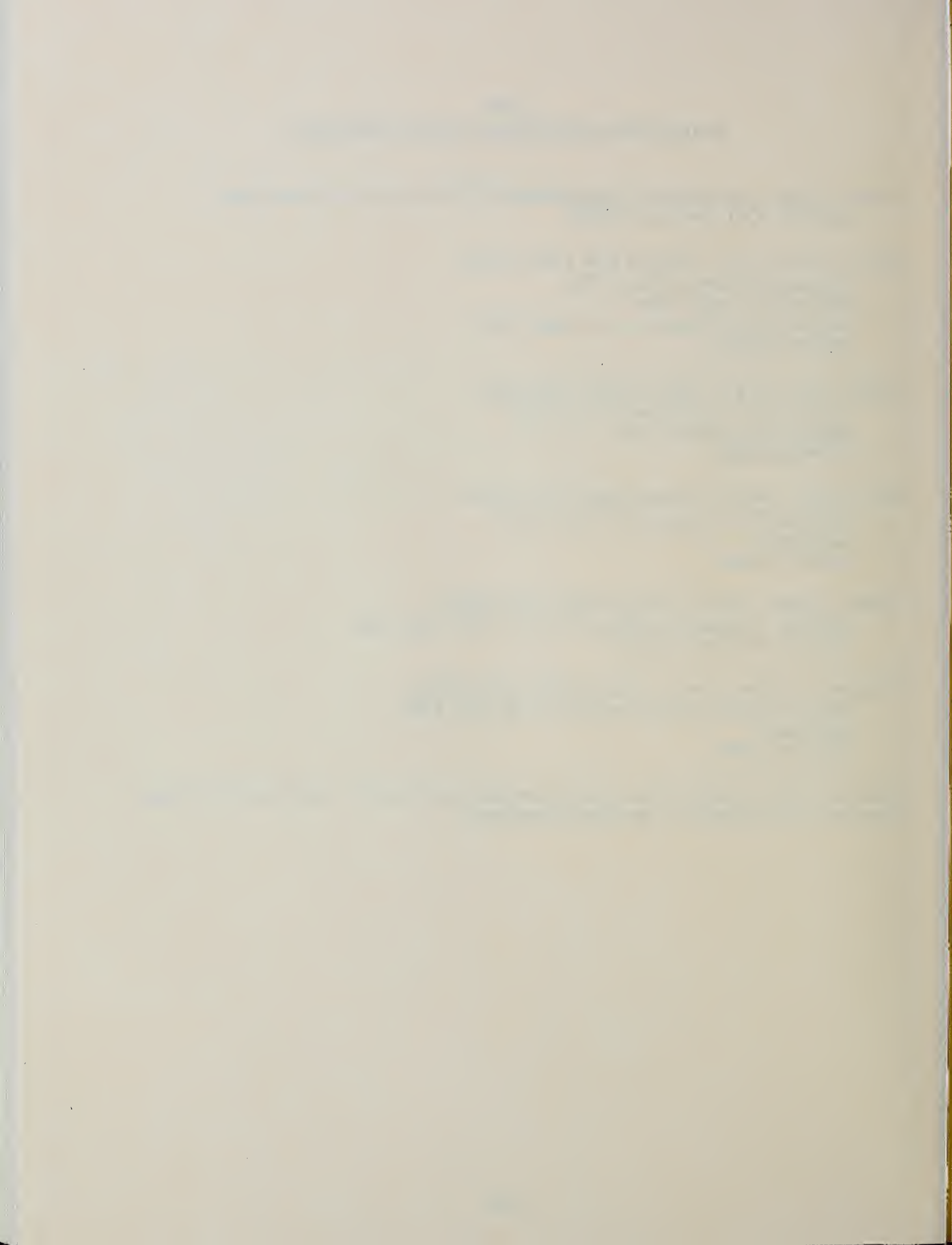
24 June - 2 July: Tour 2 - 9 days in field, 1 day in office
Walker Cove to the Chickamin (VCU 7930)
Walker Creek to Walker Lake
HEINEN, REESE

9 July - 22 July: Tour 3 - 14 days in field, 1 day in office
Chickamin River drainage (VCU 7930, 7940)
Leduc Lake
HEINEN, REESE

31 July - 8 August: Tour 4 - 11 days in field, 1 day in office
Saltwater, Chickamin to Portage Cove (VCU 7930, 7790, 7780)
HEINEN, DILLMAN, REESE

14 August - 22 August: Tour 5 - 9 days in field, 3 days in office
Saltwater, Portage to Grace Lake (VCU 7780, 7770, 7760)
Grace Lake
HEINEN, REESE

September, October schedule, 80 hour pp, to accomplish year end reports. Report ready for printing
November 1st and available for circulation November 15.



Appendix J

EQUIPMENT LIST

A list of necessary equipment has been compiled for every aspect of this monitoring project.

Aerial Photos
Topographical maps
Compass
GPS Garmin XL & CX

King Radio (2)
Nikad
Clam shell
Spare batteries

Field book complete with forms

Field notebooks
Bird and plant books
ID cards

Stream fasmaphx
Sharpie

Clinometer

Flagging

Clicker counter
Tape measure
Goshawk blaster
Mammal traps
Amphibian traps
Thermometer
Salmon eggs
Clams
PBO (peanut butter w/oats)
Nalgene with alcohol
Tags and twist ties

Binoculars
Camera
Film
Spare battery

First Aid kit

- * MSR Whisper Lite Stove
- * MSR 33 oz Fuel bottles
- * OR Bivouac bag
- * Moss Tent/fly (two person)
- * Moss Tarp
 - * PUR Hiker Water filter
- * MSR Alpine Cook kit
- * North Face Day pack
- * REI North Star Backpack

- * Moss/Remington Shotgun
- * Slugs
- * Duct tape

- * Inflatable kayak
- * Patch Kit
- * Pump
- * Paddles

- * Wilderness System Kayak
Sealution II XL High volume
- * Werner Paddles (San Juan or
Comano)
- * High Volume Bilge pump
- * Wilderness System Paddle Float
- * Deck/map bag
- * Extra Sport PFD
- * Wilderness System Touring Skirt
- * Kokatat Dry suits



Appendix K

RESOURCE SPECIALIST LIST

All the participants that have contributed to the development and the growth of this program are listed in this section.

Resources Used in Developing Program

Pat Cook	Wilderness/Recreation - Ecosystem Inventory/Monitoring Program Manager	KM District
Laura Burns	Rec/Wild. staff support	KM District
Melinda Kuharich	GIS input & KPC4 color printer	KM District
Al Grundy	GIS & Scanning photos	KM District
Duane Fisher	GIS Data base development and data input	S.O.
Mike Brown	Wildlife, staff support	KM District
Kerry Burns	Wildlife	KM District
Leslie Swada	Wildlife/Plants	KM District
Patty Krosse	Botany/ecology - vegetative surveys and plant association	S.O.
Colleen Grundy	Silverculturalist	KM District
Cam Thomas	Fish and stream specialist	KM District
John Autrey	Cultural Resources	KM District & S.O.
John Krosse	Safety/Dispatch	S.O.
Rosie Greenup	Dispatch	S.O.
Cindy Vreeland	Dispatch	S.O.
Chris John	Radio Technician	S.O.
Don Foster	Radio Technician	S.O.
Paul Crowl	Boat Maintenance	KM District
Jon Swada	Logistical Support	KM District
Nick Korpela	Logistical Support	KM District
John Rowan	Logistical Support	KM District
Richard Gruhl	Logistical Support	S.O.

Crew Members:

1.) Cody Smout - Worked as a GS-4 the first year of this projects implementation. His enthusiasm and expertise in the area of wildlife particularly birds was a great asset to the programs early development. Much of the year end report text was composed by Cody and is still used today.

(Cash Award Certificate of Merit)

2.) Audrey Taylor - Worked as a GS-5 the first year of the projects implementation. She brought to the program a lot of enthusiasm and wildlife expertise in the area of small mammals.

3.) John Evans - Worked as a GS-5 the first year of the projects implementation. He brought a lot of local knowledge to the program in the area of wildlife particularly birds and specifically Goshawks.

4.) Joni Reese - Worked as a GS-5 the second and third years of this programs development and implementation. She has surfaced as the lead field person above all other candidates. She is equally apt in the field as in the office. Which is a critical combination, often hard to find. She has strong communication skills both orally and in writing, organizational and computer skills are also among her talents. She has provided training to crew members in the area of monitoring, kayaking, and Leave No Trace principles. Her interest in the job and comittment to wilderness is of the highest standard. **(Cash Award & Certificate of Merrit)**

5.) John Morrow - Worked as a GS-5 the second year of this programs development and on one tour during the first year. He brought a comittment and passion to the work that is rarely seen. His knowledge of wilderness and the issues that surround it is vast. His comittment to prserving wilderness is of the highest standard. His skills in the area of backcountry navigation, wildlife and recreation was extremely well balanced.

6.) Cathie Pagano - Worked as a GS-4 the second year of this programs development and went out on one tour during the first year. She brought a strong interest and comittment to wilderness and a willingness to learn about its management. **(Cash Award & Certificate of Merrit)**

7.) Keith Johnstone - Worked as a GS-5 the second year of this programs development. He brought a strong technical backround in the area of field data collection. His navigational backcountry skills were excellent and his office and communication skills were solid.

8.) Jackie Heinen - Worked as a GS-5 the third year of this programs development and went on one tour during the second year. Her physical ability in the woods is very solid. She is a quick and willing student. Her strengths lie in the field abilities. Her office and communication skills are developing rapidly. **(Cash Award & Certificate of Merrit)**

Appendix L

RECIPIENT LIST

A copy of these reports has been circulated to all the folks with wilderness management responsibilities in Alaska who might be interested in developing a similar program for their own wilderness unit.

98 Monitoring Year End Report
Recipient List

Washington Office:	2 TOTAL - Liz Close & Jerry Stokes
Regional Office:	3 TOTAL - Don Fisher, Beth Pendleton, & Arn Albrecht
Supervisors Office: Bedford, Patty Krosse, Dave Arrasmith, Carol Sietz-Warmuth	6 TOTAL - Larry Meshew, John Autrey, Cole Crocker-
District Office: Cook, Cam Thomas, Colleen Grundy	6 TOTAL - Jerry Ingersol, John Autrey, Mike Brown, Pat
Other Districts: Admiralty N.M., Hoonah, Juneau, Sitka, Yakutat, Craig, Thorne Bay	9 TOTAL - Wrangell, Petersburg, Chatham S.O.,
Crew Members:	3 TOTAL - Heinen, Reese, Ashenhurst
All National Parks in Alaska:	7 TOTAL
All National Wildlife Refuges in Alaska:	11 TOTAL
FS Law Enforcement:	2 TOTAL
State ADF&G:	2 TOTAL



Appendix M

PROJECT WORK PLAN

The following will outline the cost of operating a program established for the purpose of monitoring wilderness conditions.

1999
Wilderness/Recreation
Ecosystem Inventory/Monitoring Program
Project Work Plan

Projects are prioritized in order of importance, things yet to be done as of 8/11/99

Project	Who's Assignment	When Accomplished	Time Commitment
1. VCU TLMP Reports	Joni & Jackie	Post Tours & Field Season	4 hours per VCU
2. VCU Site Description Report	Joni & Jackie	Post Tour & Field Season	4 hours per VCU
3. VCU Executive Summary	Joni & Jackie	Post Tour & Field Season	2 hours per VCU
4. VCU Encounter Data	Joni & Jackie	Post Tour & Field Season	4 hours per VCU
5. VCU Site Inventory Data	Joni & Jackie	Post Tour & Field Season	4 hours per VCU
6. Update VCU Maps	Joni & Jackie	Post Tour & Field Season	4 hours per VCU
7. Pre-trip Map/Photo Package	Joni & Jackie	Pre Tour & Field Season	4 hours per VCU
8. Helicopter Landing Reports	Joni & Jackie	Post Tour & Field Season	4 hours per report
9. Fish/Stream Reports	Joni & Jackie	Post Tour & Field Season	4 hours per report
10. Transpose field notes to 8x10 hard copy file forms	Joni & Jackie, anyone we can find	Post Tour & Field Season	8 hours per season
11. Year End Specialist Report	Joni & Pat	By November 1 Packaged, Ready for Printing, see 98' report	40 hours per season
12. Year End Executive Summary	Joni & Pat	By November 1 Packaged, Ready for Printing, see 98' report	40 hours per season
13. Update Running Encounter and Site Inventory Data Bases	Joni & Jackie, or anyone we can find	By November 1 for Year End Report	8 hours per season
14. Select Photos for Year end Reports	Joni & Jackie or Pat	By November 1 for Year End Report	8 hours per season
15. Make sure all documents have been given group, read & write access	Joni & Jackie	ASAP	2 hours per season
16. Input & Update Inv/Mon GIS layer	Joni & Pat	ASAP for Year End Report	80 hours per season

17. Print GIS maps with routes and sites established, for file folders	Joni & Pat	Post Field Season	10 hours per season
18. Develop a system or Data base to Electronically file veg. wildlife, cultural data	Joni & Pat	Pre/Post Field Season	10 hours
19. Organize Photo File	Joni & Jackie or anyone looking for something to do	Post Field Season	8 hours
20. Develop (ROGS) Recreation Opportunity Guides	Anyone looking for something to do	Pre/Post Field Season	8 hours each
21. Education Display	Anyone looking for something to do	Pre/Post Field Season	40 hours

Wilderness Inventory/Monitoring
Project Work Plan (PWP)
1999

Personnel:	GS-5 250 person days $\$110 \times 250 = \$27,500.00$
	GS-9 90 supervisor days $\$200 \times 95 = \$19,000.00$
Food:	150 days $\times \$18.00 = \2700.00
Transportation:	Beaver Flts $\$385.00 \text{ ea.} \times 10 = \3850.00
FOR:	flat rate of $\$2000.00$
<u>Equipment:</u>	<u>flat rate of $\\$11,450.00$</u>
Total Cost of Program:	$\\$66,500.00$

This is the actual base program costs, a GS-5 cost to government is approximately \$12,000.00 additional for every person added to this program. Overhead costs remain basically the same regardless of the size of the crew. I would not recommend trying to manage more than eight people unless you have some very strong returning folks lined up for employment 2 - 6 is probably ideal number of people to manage in this program.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
JANUARY 1964

TO THE HONORABLE CHAIRMAN OF THE BOARD OF TRUSTEES
OF THE UNIVERSITY OF CHICAGO

SIR:

I have the honor to acknowledge the receipt of your letter of the 11th inst. and in reply to inform you that the same has been forwarded to the appropriate authorities for their consideration.

I am, Sir, very respectfully,
Yours truly,
[Signature]

Enclosed for the Board of Trustees are two copies of a report on the subject of the proposed new building for the Department of Chemistry, which I have the honor to submit to you.

I am, Sir, very respectfully,
Yours truly,
[Signature]

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